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Wisconsin Paper Mill Looks for Better Business

A. F. Kletzien, Secretary of Fox River Paper Co., Appleton, Optimistic Regarding Future Outlook—Anticipates Consistent Gain In Volume of Trading This Year—Declares Steadily Increasing Inquiries Received Daily Form Accurate Barometer of Business Conditions—Predicts Higher Manufacturing Operations

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 25, 1935—Confident that conditions are steadily improving, the Fox River Paper Company, Appleton, Wis., one of the largest writing paper mills in the state, looks forward to a consistent gain in volume this year.

"Our business, although not increasing very much in 1934, did improve to a certain extent," states A. F. Kletzien, secretary. "We expect a rise in business this spring which really should amount to something. More inquiries are being received daily, and from past experience this can be taken as an accurate barometer of business conditions. With these increased inquiries coming from all parts of the country, it is safe to expect a corresponding spurt in business.

"The paper industry as a whole is operating at 68 per cent at the present time. Although we are unable to prophecy just how high we are going, we should be some place around the 75 per cent mark by the end of the year. We will be greatly disappointed if we don't reach that mark within the next nine months."

Wisconsin River Control

Construction of a $600,000 reservoir on the Big Eau Pleine River by the Wisconsin Valley Improvement Company of Wausau, Wis., progressed another step last week when a hearing on the application for permission to build was held by the Wisconsin Public Service Commission. There was no opposition to the project, but 100 farmers attending asked the company to construct a bridge at a point where the river is forded part of the year, and will be impossible after the reservoir is built.

The company withdrew its petition for permission to construct a tunnel between the Big and Little Eau Pleine basins, because this must be the subject of a separate hearing. Although a canal connecting the Big Eau Pleine and the Wisconsin River near Mosinee, Wis., probably will not be built for some time, that petition was not withdrawn.

The Improvement Company is required to furnish the state commission with certified copies of the deeds as evidence that it has purchased 85 per cent of the argicultural lands in the Big Eau Pleine area. This must be done before the petition is granted. The company also has accepted applications of 200 men for employment when the project is approved and work is started this year.

Warren E. Brooks, manager, M. W. Tyler, engineer, Fred W. Genrich, secretary, and L. A. Pardt, Jr., general counsel of the Improvement company, appeared on its behalf and answered questions as to water levels and other such matters. William Thiele, chief engineer of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., also took part in the hearing. The Consolidated company, as chief beneficiary of the reservoir project, is financing and handling construction of the fifteen million dollar water uniformity control of the Wisconsin River, and will turn the project over completed to the Improvement company. The cost will be amortized over a period of thirty years, and will be repaid to the Consolidated by paper mills and others owning water power along the Wisconsin. The Improvement company is a holding company owned by the mills, and has maintained a series of control dams and reservoirs for years.

Power Conditions Satisfactory

Thousands of dollars have been saved by paper mills because of the favorable water power conditions during the winter, and no necessity for purchasing additional power from commercial sources. In the opinion of Ernest Belter, of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., the winter was the best in the history of the Wisconsin River. Reservoirs in the northern headwaters, usually empty at this time, are now 17 per cent full because they have not been heavily drawn upon during the winter. Indications point to good power conditions during the coming summer.

Safety Conference Program

F. F. Martin, of the Kimberly-Clark Corporation, Neenah, Wis., and R. W. Mahoney, of the Appleton Coated Paper Company, will assist in preparing the program for the paper and pulp mill section of the Fox River Valley and Lake Shore Safety Conference to be held at Sheboygan, Wis., May 22. They will confer with the general committee at a meeting at Sheboygan April 1 as to speakers and subjects to be discussed. The conference this year will have the assistance of the Wisconsin Industrial Commission, through Hugo A. Klemm, director of

(Continued on page 17)

Future Outlook for Newsprint Bright In Canada

Pamphlet Published by R. O. Sweezey & Co., States Dominion Now Possesses Modern, Well-Equipped Industry, Physically Capable of Meeting Any Foreign Competition—Constantly Growing Demand Anticipated, With Normal Growth In Population

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 25, 1935—Optimism over the long-term outlook of the Canadian newsprint industry is expressed in a pamphlet entitled "The Future of the Canadian Newsprint Industry," just issued by R. O. Sweezey & Co., Ltd., of Montreal. The pamphlet has an added interest from the fact that Mr. Sweezey, the head of the firm, has for many years been prominent in connection wth the industry, and is in fact regarded as one of the Dominion's leading authorities on the subject. In view of the contemplated action of the Quebec Government with a view to compelling companies to establish an increased price for newsprint the publication is important, since it expresses the emphatic opinion that the natural forces of recovery are sufficient to accomplish the rehabilitation of the industry at an early date, that Government interference should be avoided, and that the best remedy is financial reconstruction, which should include rehabilitation of management.

Giving a timely analysis of the industry, with a number of highly informing character, the pamphlet holds that while over-expansion in past years brought disaster, it has left Canada in possession of a modern, well-equipped industry, physically capable of meeting any demands which may be placed on it for several years, and capable of competing, in so far as cost of production is concerned, with any other country in the world.

Following the remark that the newsprint market is restricted to one group of customers, the newspaper publishers, and for Canada primarily those in the United States, it is pointed out that during the past half century newsprint consumption in the United States has increased from six pounds per capita in 1890 to a peak of sixty-two pounds per capita in 1929, but did not during the subsequent depression period drop below the 1920 rate. It may be assumed that the consumption of a substantial amount of newsprint paper per capita in the United States is as much a part of that country's economic life as the consumption of gasoline, rubber, or any other product which is peculiarly a part of the present economic system.

The dependence of the United States on Canada for newsprint is obvious, so that considering the power of the press in the public life of the American nation, and its ability to protect the supply of its most important raw material, suggestions of prohibtive tariffs, import quotas, or the development of uneconomic competition, may be largely discounted. In short, the long-term outlook for newsprint in the export market may be termed very satisfactory, while the outlook for our other two important products, wheat and metals, is, at the best, uncertain.

"The immediate outlook," the pamphlet continues, "is not less promising than the long term future. Recent improvement in demand has been at a consistent rate. While it is possible that the present rate of increase may not persist, it seems certain that at least the current rate of consumption will continue for some considerable time.

"There can be no question that as the business recovery of the world, and particularly of the United States, proceeds, the demand for newsprint paper will continue to increase. Even though the peak of per capita consumption reached in 1929 is not duplicated for some time, there will be a constantly growing demand of moderate size with the normal growth in population. It is safe to assume that the current consumption is at the rate of about 52 pounds per capital, and estimates based on this figure will not be over optimistic."

Price Brothers' Reorganization

P. W. Pitt, of London, England, representing a group of British financial interests who are interested in acquiring control of Price Bros. & Co., the big newsprint and lumber firm now being operated under a receivership, has issued a statement that satisfactory progress is being made in negotiations for the reorganization of the company. The statement reads:

"Thanks to the wholehearted cooperation which I have received from all Canadian interests concerned with the affairs of Price Brothers, I am very pleased to be able to say that my negotiations have so far progressed satisfactorily.

"A re-organization plan such as that contemplated by my group, however, naturally takes time to work out. In addition to the general principles involved, points of financial detail have now arisen which I find it necessary to discuss with the members of my group in person before I am in a position to settle final terms with the parties interested.

"For this purpose I am accordingly sailing for England and I expect to return to Canada within a few weeks to continue my negotiations here."

Brompton Reports Profit

Brompton Pulp and Paper Company, subsidiary of St. Lawrence Corporation, reports marked improvement in its operating revenue for 1934, a profit of $206,198 being shown as compared with a loss of $262,350 in 1933 and a loss of $670,931 in 1932. The company's profit and loss account shows that for the past year Brompton was able to meet all charges, including a depreciation reserve of $175,682, and have a balance of $15,550.

Newsprint Export Gain

Canada's exports of newsprint gained in both volume and value in February, as compared with February, 1934. The totals were 2,935,938 cwt., valued at $5,044,859, as compared with 2,638,386 cwt., valued at $4,396,700. The United States was the best customer taking to the value of $4,326,000.

Exports of woodpulp and screenings in February amounted to 915,444 cwt. valued at $1,985,562 compared with 831,352 cwt. at $1,814,651 last year. The pulpwood export was 56,950 cords, all of which went to the United States, and was valued at $305,638 against 21,608 cords at $122,147 in February, 1934.

Market for Bleached Pulp in France

With the signing on February 26 of the protocol to the Franco-Canada trade agreement, Canadian producers of dry bleached chemical pulp for all purposes receive the benefit of the minimum tariff. The rate of duty is therefore reduced from 16 francs to 13 francs per 100 kil

grams gross weight, a reduction which amounts, at present rates of exchange, to about 10 cents per 100 pounds. It is true that since June 10, 1933, bleached chemical pulp for the manufacture of artificial silk only has been allowed into France from Canada at the minimum rate. The new agreement extends this to all uses of the product. For the first nine months of 1934 the imports of dry bleached chemical pulp into France totalled 85,894 long tons, dstributed as follows: Germany, 11,912 long tons; Austria, 9,739; Finland, 8,355; Norway, 9,910; Sweden, 20,361; Czechoslovakia, 7,785; Canada, 6,681; United States, 8,652; others, 2,497 long tons.

Japan's Imports of Pulp and Paper

Imports of pulp into Japan in 1934 amounted to 254,310 tons valued at 44,255,752 yen (100 yen equal approximately $28), an increase of 40.8 per cent in quantity and 63.5 per cent in value when compared with the figures for the previous year. The increased production of rayon yarn was responsible for the increase in pulp imports. According to the import returns, the United States supplied 94,340 tons of pulp to Japan during last year; Sweden, 53,377 tons; Canada, 45,330 tons; Norway, 44,617 tons; Finland, 12,966 tons; Germany, 3,024 tons; Great Britain, 110 tons; and other countries, including Czechoslovakia, 546 tons. Of the total imports it is estimated that 150,000 tons were used for rayon yarn purposes compared with 75,000 tons during 1933. The year 1934 marked the highest output in the annals of the Japanese paper manufacturing industry. The total output of foreign-style paper reached 795,737 tons as against 722,052 tons for the previous year. Japanese paper exported during the year amounted to 86,153 tons, or, an increase of 11.8 per cent in volume and of 16.7 per cent in value.

B. C. Pulp & Paper Co.'s Report

The British Columbia Pulp and Paper Company, Ltd., has just forwarded its financial statement for the calendar year 1934 to shareholders. It shows operating profits at $706,833 (including $29,877 income from investments), which contrasts with $404,072 for 1933 and an operating loss of $72,206 in 1932.

Deduction of directors' fees at $3,900; bond interest at $317,553; depreciation at $395,000 and tax provision at $12,000, left a loss for the year of $21,619, against a loss of $260,717 in 1933. Previous deficit was brought forward at $782,918, showing a deficit carried forward in the current report of $804,538.

Lawrence Killam, president, expresses regret that results have made it impossible to make any payments of dividends to shareholders.

Ohio TAPPI Members to Meet

The members and friends of the Technical Association of the Pulp and Paper Industry located in Southern Ohio will meet at the Manchester Hotel, Middletown, Ohio, on April 20 at 6:30 p.m. There will be two principal speakers.

George C. Munro of the Champion Coated Paper Company, Hamilton, Ohio will describe the Brightness Tester and point out its use in grading papers.

Robert F. Reed, Director of the Department of Lithographic Research of the University of Cincinnati will talk on "Lithography and Paper" and will outline a number of paper problems.

A large delegation of members of the Ben Franklin Typothetae are expected to be present.

Anyone interested in attending this meeting will be welcome.

Mohawk Mill To Start April 15

[FROM OUR REGULAR CORRESPONDENT]

NORTH ADAMS, Mass., March 25, 1935—The Mohawk Paper Board Company, Inc., recently incorporated, has leased a building on Weber avenue, here. The concern, which will manufacture only high grades of all kinds of board for the shoe trade, will be in production about April 15. The company already has more orders that it can handle. When the building leased by the company is equipped with machinery it will be a three unit mill which will take care of one order on contract for a year. The plant will turn out about 15 tons daily of Inersol Board, the main product at present, although Counter Board, Binders Board, Button Board, Sheet Heeling Board and Fibre Board are also listed among the manufactures of the concern. There will be about 40 employees.

Clifford A. Davis, general manager of the company, has been associated with various concerns for the last 24 years, including connections with agents in New York and Boston.

B. F. Collins, the president, comes from a long line of paper makers and is well known throughout the States of Massachusetts and New York. Miss Irene E. Cummings, experienced woman, is treasurer.

Joseph Fitzgerald; although new to the field, has proved his worth in the short time he has been with the company to act as its assistant treasurer.

Kalamazoo Valley TAPPI to Meet

The Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry will meet at the Bryant Paper Company office at 7:30 P.M., Thursday, April 4, 1935. Harold M. Annis is chairman of the Section.

A. B. Perlick of the Kalamazoo Vegetable Parchment Company will present a paper on "A Description of a Two-Stage Method for Bleaching Sulphite."

W. J. White of the same company will discuss "Bleaching."

The meeting will be followed by an inspection of the mill of the Bryant Paper Company.

Two Section Committees have been appointed:

Program: Frank Libby, Kalamazoo Vegetable Parchment Company, Chairman; Henry Heller, Paper Makers Chemical Corporation; and I. R. Valentine, Lee Paper Company.

Arrangements: A. C. Dreshfield, Paper Makers Chemical Corporation, Chairman; P. W. Bartholomew, Paper Makers Chemical Corporation; John Bauman, Kalamazoo Vegetable Parchment Company; and Severens Balch, Watervliet Paper Company.

Robert Gair Acquires Androscoggin Mill

Robert Gair Company, Inc., through E. Victor Donaldson, president, announced early this week the acquisition by purchase of the plant and equipment of the Androscoggin Pulp Company, South Windham, Maine. After April 1, Mr. Donaldson said, the business will be operated by the Androscoggin Paper and Pulp Corporation, a wholly owned subsidiary of Robert Gair Company, Inc. The resident management will continue unchanged under E. K. Mansfield.

The Androscoggin mill is a modern paperboard and ground wood pulp plant. Its three paperboard machines produce standard types of paper box boards as well as special boards.

Chicago Paper Market Conditions Unchanged

Mill Representatives Report Orders for Various Grades of Paper Keeping Apace With Preceding Week—Fine Paper Section Steady, With Book, Cover, Bond and Ledger Papers In Seasonal Request—Kraft Paper Business Slightly Curtailed

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 25, 1935—While manufacturers representatives reported a continued volume of orders about apace with last week, Chicago jobbers, particularly in the fine and kraft paper groups, indicated that within the last ten days their business has been slightly curtailed. The jobbing trade, however, expects a betterment in business around April 1, which is expected to carry on until the mid-summer period.

Marketwise, conditions are little changed. The price situation remains comparatively satisfactory in virtually all lines, while demand, except for the exceptions noted above, has held up very well. Fine papers continued to show a good report, with bonds and ledgers finding business improvement aiding materially in a broadening of demand. Krafts, from the manufacturers standpoint and extending far outside Chicago proper, were reported fairly steady. Locally, jobbers are finding some hesitancy to stock which, however, is said to be nothing alarming at this time.

Books and covers remain little changed. Ground woods are slowly improving, though there is ample evidence of the inter-relationship between groundwoods and the newsprint situation. Paper board made some progress. Waste papers showed little tendency to do more than only slightly respond to the often mentioned fears of inflation and rising prices.

Gen. Johnson Addresses Waste Material Men

General Hugh Johnson fittingly climaxed the big annual meeting of the National Association of Waste Material Dealers with an urge that the industry "stick with the NRA under modified form" and that everything should be done to salvage it rather than "ditch it." It was a most interesting discussion from that angle, inasmuch as the association, during the days of March 18, 19 and 20 had diligently conducted group and open forum sessions during which times the NRA came in for a lot of criticism, which indicated some sentiment within the industry to do that very "ditching." The General attracted about 1,000 executives to the Hotel Sherman for the climax event and though he talked about the tremendous part played by waste dealers in war and war preparations, about threats of inflation and a few other things he did do a pretty good job of trying to keep the association under the bonds of NRA.

"I can say something of your industry," said the General, "which I cannot say of any other that I know of in all my activities in NRA. Reports at NRA when I left showed that you had doubled your payroll, which I think is astonishing—and you know you have doubled your prices on many products."

Convention Discusses Important Problems

Prior to the windup event the waste material dealers stuck closely to forum and open discussion events, with the Waste Paper Institute, under the leadership of David Charak, taking an important part. The initial meeting of the Institute was held Monday afternoon, March 18, while a final meeting for action on pending matters was held on Wednesday morning. The greater part of the remaining time found the waste paper dealers in the thick of the forum program, where five pertinent questions were under the microscope. They were "Shall Government or Industry enforce wage and hour provisions?", "How can compliance best be obtained?", "Is the basis of assessments equitable?", "Should assessments be collected by industry or by the Government?", "Should the provisions covering wages and hours as now in effect be modified?", "Price stabilization." Time limit for each statement, oral or written, was five minutes.

The forum program brought out a lot of fireworks which really got under way in the opening convention address made by George Berkinstein, retiring president of the association. Mr. Birkinstein reported that the waste materials industry was being endangered by monopolies created under the NRA and is quoted as saying that "there has been an unlawful and undercover fixing of prices, with the result that, while new copper for example has risen on the market, prices for secondary copper has dropped." Even the Chicago attorney who welcomed the association to the city, William D. Saltiel, suggested that regulation should come through trade association effort. He implied that this was far preferable to governmental regulation.

On March 19 the forum meetings brought out a significant statement from J. J. Patricof, of the Sterling Mill Supply Company, which had a slice of the Chicago newspaper fraternity all agog. Mr. Patricof suggested that code restrictions be liberalized to allow the waste paper industry to increase the working week from 40 to 48 hours at the current code rate of 32.5 cents an hour for common labor, so that from the standpoint of man-power it could survive the competition of government relief agencies. He added that relief equalling the present code wage was easily obtainable, the result being that there is no real disposition to work where that condition prevails. He thought that code enforcement by the federal government has proven impossible and urged that the States take care of the matter.

Recovery Code Defended

Defendants of the NRA and the code were also numerous. Included in this group were I. Cohen, of Chicago, who cautioned against rejecting the code until it had been given a fair trial. He pointed out that the bad conditions of 1929-32 had been remedied largely by the agency the dealers were "now yelling about." "We couldn't do better than get behind the administration that helped us," said Mr. Cohen. He was seconded by Sam Hill of Nebraska, who advocated strict code enforcement.

The waste paper sessions thoroughly canvassed the code situation with many prominent figures in the industry taking part, under the presiding gavel of Mr. Charak. J. V. Spachner, of the Chicago Mill Paper Stock Company, a newly elected director of the association, was one of these. Others were Harold Shilling, of the United States Paper Supply Company of Chicago; A. V. Letellier, of New Orleans; John Winters, of Cleveland and Paul White, of New York City. In fact, a remarkably high percentage of those who crowded into the Institute meetings got a chance to register their feelings and air their views.

Wage Question Discussed

Going back to General Johnson here are some answers

he gave to queries which will interest the paper trade in general. Many were related to the wage question, competition and the NRA. Here is an answer "If any business depends for its existence upon the paying of less than living wages, it has no business existing. A living wage is the base for common labor of 40 cents per hour and all other rates following thereon. NRA still has faults and one of the greatest is that it didn't provide for an inter-code differential. The man who wants to lower the American standard of living should be shot. The public purse is not inexhaustible and we should bear that in mind in balancing living wage and relief costs." The closing was significant—that the present government policies are leading, ultimately, to currency inflation.

E. B. Friedlander, Lowenthal Company, Chicago, was elected president of the National Association of Waste Material Dealers. Directors elected included Mr. Spachner; and A. T. Hicks, N. R. Johansen and William Steck, all of New York City.

Vortex Cup Co.'s Profits Up

The Vortex Cup Company recently reported consolidated net profit of $423,210, after all charges, for the year ended December 31, 1934, equivalent after preferred dividends to $2.45 a share on the outstanding common stock. This compares with net of $358,405 or $1.79 a share in 1933. Current assets at the end of the year amounted to $1,040,801, including case of $719,221, against current liabilities of $150,726, compared with current assets of $1,297,990, cash of $117,683 and current liabilities of $129,212 on December 31, 1933.

Salesmen's Golf Outings Planned

Ben Babbitt, of the Brown Company, has been selected as the chairman of the golf committee of the Mid-West Division, Salesmen's Association of the Paper Industry. Mr. Babbitt has already selected an unusually fine group of golf courses over which the salesmen and their guests will play monthly, the initial event getting under way about the middle of May. The association plans to wind up the season's play in October with another of those annual outings held at the time of the Fall meetings of the National Paper Trade Association at which many out-of-town guests will be present.

Taggart Bros. Corp. Shows Gain

WATERTOWN, N. Y., March 25, 1935.—The annual report of the Taggart Brothers Corporation shows that its net loss last year was reduced to $207,833.32 compared to a net loss of $421,531.69 in 1933. Net sales showed a decided increase in 1934 aggregating $2,290,839.81 in comparison to $1,533,175.63 in 1933. Cost of sales, selling, administrative and general expenses increased by more than $500,000 which lowered the operating profit. Cost of sales are placed at $1,849,362.75 while in 1933 the amount was $1,336,524.58. The operating profit last year before depreciation and idle plant expenses was $441,477.06 in comparison to $216,651.05 the preceding year. Other income charges including interest, amortization of bond discount and expenses, taxes escaped federal except federal income, and miscellaneous were $298,962.61 in comparison to $316,531.36 in 1933. The profit in 1934 before depreciation, idle plant expenses, and federal income taxes was $184,469.81. In 1933 such deductions resulted in a loss of $28,487.05. Provision for depreciation of plant property, idle plant expenses and federal income taxes amounted to $392,303.13 in 1934 in comparison to $393,044.64 the preceding year. Total assets are placed at $7,526,692.85.

LOOKS FOR BETTER BUSINESS

(Continued from page 13)

safety education. More stress will be placed on traffic safety.

Paper Chemistry Institute's Visitors

Sixty students of the school of chemistry of the University of Michigan visited the Institute of Paper Chemistry, Appleton, Wis., last week, accompanied by Dr. R. E. Montonna and Dr. C. A. Mann. They also visited the Fox River Paper Company's mills at Appleton, the Kimberly-Clark Corporation's mills at Neenah, and others in the Fox River Valley.

Ray Richards Resigns

Ray Richards, secretary of the Central Labor Union at Wisconsin Rapids, Wis., one of the chief negotiators of the union contracts annually with the Consolidated Water Power and Paper Company, has resigned his office. He has been elected sixth vice-president and travelling representative of the International Brotherhood of Pulp and Sulphite Workers, and will make his headquarters at Appleton, Wis. He is also on the executive board of the Wisconsin Federation of Labor. Arthur Mueller, of Pulp and Sulphite Workers' local No. 94 succeeds him at Wisconsin Rapids.

Lobert Bell Weds

Announcement is made of the marriage of Lobert Bell and Miss June Seiler, of Neenah, Wis. Mr. Bell is now associated with the Mt. Rainier Pulp and Paper Company at Shelton, Wash. The ceremony took place at Shelton, where the couple will reside.

All-Ohio Tour of Mexico and Southwest

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, March 25, 1935—Alexander Thomson, president of the Champion Coated Paper Company, of Hamilton, who recently returned from a tour of Mexico in the interest of his firm, has decided that now is the time for American manufacturers to obtain some of the valuable paper and other industrial orders from Mexico and the Southwest.

During the past week Mr. Thomson conferred with the Foreign Trade club in Cincinnati and told of the possibilities in those sections of the United States and in Mexico.

He outlined plans for an all-Ohio tour of Mexico and the Southwest and said that a special train bearing Ohio manufacturers will leave Cincinnati, April 4, next, and will return 17 days later. He submitted the all-Ohio proposition as president of the Ohio Chamber of Commerce, a post he has filled creditably for some time.

Arrangements were made in Hamilton, Dayton and Middletown, following Mr. Thomson's Cincinnati conference, for meetings during the coming week to make final arrangements for participation in the proposed goodwill trip. It is understood that a number of Miami Valley firms, including paper concerns, have become interested, particularly since Mr. Thomson made a personal investigation of trade possibilities recently when he visited Mexico.

Newsprint Association to Move

On and after March 28, the office of the Association of Newsprint Manufacturers of the United States will be in Room 609, 342 Madison avenue, New York, instead of in the Chanin Building.

Boston Paper Market Trend Fairly Favorable

Moderate Volume of Orders Booked for Various Standard Grades of Fine Paper—Wrapping Paper Movement Irregular—Special Lines of Paper Bags Quite Active—Request for Standard Lines Restricted—Box Board Business Rather Quiet

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 25, 1935—The Boston wholesale paper market as a whole continued at least fairly favorable. Fine paper merchants received orders in moderate volume. Wrapping paper was not quite so active as fine paper, reports ranging from "poor" to "pretty good." There was a very healthy activity in special lines of paper bags, although for standard lines there was less demand. Business in box board was rather quiet.

Hardly a fair volume of business prevailed in paper stock, although only one change in value was noted in the entire list. In old papers, the quotation for old newspapers was a flat .27½, compared with a range of .22½ @ .30 for the previous week. Demand for this commodity declined somewhat. Mixed papers moved in limited amounts at the same price of .20. Bagging was firm in all lines. New and old domestic rags were quiet. Very few, if any, foreign rags are being imported.

Folding Box Manufacturers Meet

Robert S. Harris, secretary-treasurer of the Fort Orange Paper Company, Castleton-on-Hudson, N. Y., gave a talk on general lines of cooperation and association work at a meeting of Zone 1 members of the folding box industry under the auspices of the Folding Paper Box Manufacturers of New England, held at the Hotel Statler, March 13.

A. E. Murphy, agent representative of the Folding Box Authority, spoke along lines of the general situation and cooperation of manufacturers under the Folding Box Code. He gave reports of the activity in zones all over the country.

Mr. Murphy recently returned from New Orleans, attending a zone meeting of Southern manufacturers. Code matters and the Open Price Plan were discussed at the meeting, at which H. S. Patterson, president of the New England organization, presided. Plans were made for frequent meetings of the manufacturers in the New England Zone.

There was a good attendance, with members of the industry present from Massachusetts, Rhode Island and Connecticut. E. T. Williams, the Boston representative of the Fort Orange Paper Company, was among those present.

News of the Trade

The new Eagle-A Advertising and Announcement Book was presented at a sales meeting of John Carter & Co., Inc., held at the office of the company Saturday morning. Changes and improvements in the line for the coming season were outlined. Mr. Voltman, of the Kent Paper Company, New York; and James H. Sweet, of the American Writing Paper Company, were speakers. Leon M. Poore, director of sales of John Carter & Co., Inc., presided.

At the regular sales meeting of Stimpson & Co., Inc., held Saturday at the office of the company, Harrison Dodge, of the Sutherland Paper Company, Kalamazoo, Mich., discussed his concern's line of paper plates, both plain and decorated. W. H. Loud, of Stimpson & Co., presided.

A general sales meeting of the Storrs & Bement Company was held at the office March 16, with John H. Brewer, general manager, presiding.

A luncheon meeting of the Fine Paper Division of the New England Paper Merchants Association was held Tuesday at the Boston Chamber of Commerce. Frank H. Winter, vice-president of the association in charge of the division, presided.

The Stone and Forsyth Associates, of Stone & Forsyth Company enjoyed a dinner and dance in the Ruby Room of the Hotel Touraine, March 16, with 104, including guests, present. The entertainment included a floor show. There were St. Patrick's Day favors and flowers on the table. Mr. and Mrs. William Martin won a $5 prize as best dancers of the waltz. The elimination prize was awarded to Edward Radigan and Miss Julia Martin.

Henry L. Goodman, dealer in fancy papers, is putting on the market a new line of metallized papers, developed by Coy, Hunt & Co., New York, in conjunction with E. I. Du Pont de Nemours Company. This product has the attractiveness of metal, combined with protective qualities, and lends itself to the development of box wraps.

Mr. Goodman recently returned from an 18-days cruise to the West Indies, on which he was accompanied by Mrs. Goodman.

J. F. Dunleavy, president of the Dunleavy Company, manufacturer of stationers' supplies, including index cards, has returned from a two weeks trip through Pennsylvania and New York.

The Brooks Manufacturing Company, of which John E. Brooks is the head, has taken over the fifth floor at 27 Kingston street. The company will continue to occupy the second floor of the building. Mr. Brooks has been elected vice-president of the Boston Stationers Association.

H. H. Rutter, of Rutter & McNaught, Inc., who is passing two weeks in Miami, Fla., accompanied by Mrs. Rutter, is expected to return in early April.

Lennox Ransom, New England representative of the Union Bag and Paper Corporation, New York, has gone on a trip to Havana and Nassau, planning to return in April.

Among those who called on the Boston trade last week were S. C. Knode, vice-president of the Albemarle Paper Manufacturing Corporation, New York; Thomas B. Farrell, assistant general manager of the Ryegate Paper Company, East Ryegate, Vt.; C. W. Hollandale, of the Munising Paper Company, Munising, N. Y., and P. M. Beach, of the Riegel Paper Corporation, New York.

H. B. Marks Co. To Deal in Paper Stocks

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., March 25, 1935—Articles of incorporation have been filed with the Indiana secretary of state by the H. B. Marks Company, Inc., 517 South Delaware street, here, formed to deal in paper stock and other waste materials. The corporation has 100 shares of capital stock valued at $100 a share and the incorporators are H. Benjamin Marks, Sadie R. Marks and Isidore Feibleman.

Demand for Paper Fairly Persistent In Ontario

Newsprint Paper Business Continues to Expand Slightly—Fine Paper Market Inclined to Fluctuate—Although Book and Writing Papers Are Less Active, More Lively Trading Is Expected Shortly—Wholesale Trade Shows Gain Over Last Year

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., March 25, 1935—Business in the newsprint industry continues to show a slight expansion, with 180,305 tons produced last month, which was an increase of less than three and a half per cent over the corresponding month in 1934, when output totalled 174,400 tons. In the book and writing paper sections there has been a slowing up during the past two or three weeks but, with the advent of spring and the natural increase in business due to favorable weather and shipping facilities, an improvement is expected. Prices are holding fairly firm on regular lines but all plants could stand more orders. As far as the wholesale trade in Toronto is concerned, the turnover shows a gain over last year for the first quarter. Most consumers have been allowing stocks to get low until a better barometer of the commercial and industrial situation was shown, and there are now evidences that the trend will be upward. January was an exceptionally good month but about the middle of February orders fell off in fine papers and there have been several fluctuations since that time.

United Paper Mills Ltd. Issue Booklet

In honor of the removal to their new home at 51 Wellington street West, Toronto, the United Paper Mills, Ltd., of which R. I. Finlay is president, have issued one of the most beautiful and artistic booklets ever printed in Canada. The publication is on Notre Dame Intaglio hand-made finish cover paper in cream and white, with impressionistic drawings of the delivery equipment, stock room, sample service, warehouse facilities and other appropriate pictorial presentations in vari-colored, hand-painted sketches depicting the progress of the firm, under the caption of "An Announcement to the Printing Trade." The business was launched at 74 York street, Toronto, twenty-five years ago, with a small staff and stock. A branch was opened in Hamilton, in 1919, and in 1923 United Paper Mills moved to larger quarters in that city and in 1929 purchased a large warehouse building there. In 1928, another branch was established in London catering specially to the trade in Western Ontario. The company now have three warehouses located at strategic points. Some time ago the new home of the firm at 51 Wellington street West, Toronto, which is a most central location, was purchased and the removal from the old premises at 129 Spadina avenue has just been completed. Extensive improvements have been effected in the new warehouse, which has increased floor space and ideal shipping facilities. The firm specializes in all kinds of fine papers.

Chemists Discuss Paper Making

At a recent meeting of the Ottawa Section of the Society of Chemical Industry, the paper making calling was discussed at length and the members were taken on a tour of the testing laboratories of the E. B. Eddy Company, Ltd., Hull. Dr. H. Wyatt Johnston, of the Forest Products Laboratories, of Montreal, Canada, gave an interesting, illustrated address on pulp and paper making. E. A. Thompson, chairman of the section, presided. Congratulations were extended to Dr. F. T. Shutt, who was recently awarded the Sir Joseph Flavelle medal.

News of the Trade

While a tour of inspection of the paper mill at Fort Frances, Ont., and also at International Falls, Minn., officials from the head office in Minneapolis, of the Fort Francis Pulp and Paper Company had an interview with the Fort Frances town council. The chief item of discussion was the increased tax on the Fort Frances mill property, which has been brought about this year by the elimination of the flat rate assessment which automatically expired at the end of 1934. With regard to the flat rate of assessment agreement, C. S. Pope, executive vice president of the company, pointed out that he and his associates had misinterpreted the contract and were of the opinion that it had one more year to go. As an outcome, the company had naturally neglected to place their case before the council of 1934. This in turn had resulted in the company approaching the civic authorities at this time for relief from increased assessment and the resultant advance in the amount of taxes which it is now required to pay under the present full assessment. Further negotiations in regard to the matter are in progress.

The Hon. Peter Heenan, Minister of Lands and Forests for the province of Ontario, who is in ill health, is spending some time in England. The Hon. M. F. Hepburn, Premier of Ontario, has temporarily taken over the duties of Mr. Heenan's department and in case the latter is not able to resume his work, a new Minister will eventually be appointed to look after the lumber, pulp and paper matters of the province. The choice is said to rest between E. A. Lapierre, M. L. A., of Sudbury, and Dr. A. L. Roberts, of Sault Ste. Marie.

Settlements in connection with the timber and pulpwood dues owing to the province of Ontario have been made to the extent of $238,388, according to information brought down in the Ontario Legislature the amount owing the province when the present administration came into power was $253,242 "Settlement," it was pointed out, meant only a readjustment and not that the accounts had been paid.

Walter Dickinson & Co., Ltd., wholesale paper dealers, are removing from 384 Adelaide street West to 79 Wellington street West, Toronto, where they have secured larger and more centrally located premises.

George W. Pauline, of Toronto, managing director of the Alliance Paper Mills, Merritton, Ont., has gone on an extended business trip to England. He was accompanied by Mrs. Pauline.

Interlake Tissue Mills, Ltd., Toronto, who maintain an office warehouse at 950 Homer street, Vancouver, have just appointed W. Thornton Poole as manager for British Columbia. Mr. Poole has an extensive experience gained in various parts of Canada and is well known to the paper making fraternity in British Columbia.

Among the late callers on the trade in Toronto was H. S. Ramsay, of Winnipeg, who is the western representative of several large mills located in Eastern Canada.

Paper Demand Continues Active In Philadelphia

Record of Local Paper Industry for First Quarter of Year Reveals Best Relative Showing Since 1931—Long Range Business Somewhat Restricted Due to Uncertainty Regarding Future of National Industrial Recovery Act

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 25, 1935—Activity in the paper trade here for the first quarter this year reveals the best relative showing since 1931. However, the adverse influence which, in all probability, will restrict long range business is the fact that since the NRA Act expires next June, it is clearly evident that something will have to be done before that time, as it is a conceded fact that the NRA is a major factor in the calculations of the paper industry.

Revised Schedule for Sulphite Bond

From the headquarters of the Sub-Committee for the Philadelphia Trading Area, there was recently sent out Bulletin No. 62 which reads as follows: "In accordance with Article VIII Section 2 of the Code of Fair Competition for the Paper Distributing Trade, the Garrett-Buchanan Company has filed a revised price schedule on No. 4 Unwatermarked Sulphite Bond. Any member of the trade may sell at these prices by filing with this office the same schedule and stating the name of the member of the trade whose price justifies its prices. All schedules must bear certification that they are justified under B-2 Article VIII of the Code." The revised schedule of prices on the above item is marked Price List No. 1-B and became effective March 23, 1935.

Code Budget Low

Doris E. Lewis, executive secretary for the Sub-Committee for the Philadelphia Trading Area states that it is the hope of the committee that members of the trade in this area will send in their remittances promptly when bills for assessments are received. In connection with this, Bulletin known as No. 63 was mailed out to the trade calling attention to Bulletin G-38 having to do with the proposed budget for the coming year—recently sent to all members of the trade from the Code Authority in New York—stressing the fact that notice of opportunity to be heard expires on March 25. Mrs. Lewis further states that the budget for the Philadelphia Trading Area is the lowest for any Trading Area in the United States, due to the economical manner in which the office has been administered and the untiring efforts of the local committee in keeping down assessments.

Paper & Cordage Association Meets

Major W. D. Wilks, Director of Membership Bureau of the Philadelphia Chamber of Commerce, was guest speaker at the March meeting of the Philadelphia Paper and Cordage Association. He outlined the growth of organized commercial efforts from the time of the gatherings of business men in the eleventh century under the title of Fairs. This was, as far as is known, the genesis of the modern trade associations. At this time those engaged in barter gathered together to discuss the problems of the day.

Later on in the twelfth century separate organizations were formed to care for the various types of trade. These organizations were known as Guilds, and various Guilds were designated by badges and trade marks, such as the modern organizations. This continued until the latter part of the twelfth century when, due to the increase in population, towns or communities were formed. At this time the Guilds were classified as trade and agriculture guilds.

Major Wilks traced the continued growth of the organized efforts of men down to the time when President Taft in 1912, in an endeavor to gather the consensus of opinion of people, noticed that there was quite a diversity of opinion about matters of public interest.

It was in this year that the Chamber of Commerce of the United States was formed, to act as one mouthpiece of the business world. Headquarters were established in the Nation's capital, and various branches have since been formed in practically every city and hamlet in the United States with a membership of over 500,000 men, and contact is made with many other groups with a common purpose.

In conclusion, Major Wilks reminded the members to beware of false prophets in the political world and urged the members to help in maintaining the principles which made the United States the greatest country in the world.

News of the Trade

During the week, award was made by the Department of Supplies in the City of Philadelphia for the Bureau of Police, to Whiting Paper Company, Inc., for 500 reams of No. 4 sulphite bond white paper 17x22-20. For the same Bureau, on another proposal, there were also made the following awards: 150 reams 17x22-20 No. 4 sulphite bond in white, pink and blue, to the Penn Card and Paper Company; 25 reams 25 per cent rag white bond, to Whiting Paper Company; 50 reams 17x22 tissue to Whiting-Patterson Company, and 125 reams of index and second sheets to D. L. Ward Company.

At the Downtown Club on Tuesday, Norbert A. Considine, president of the Philadelphia Paper Trade Association, presided at the Board of Governors meeting. After luncheon, routine matters were discussed.

The paper bag jobbers of metropolitan Philadelphia have again banded together. Thus far they have met twice but as yet have no permanent setup, however, acting as temporary chairman is David Back, of Enterprise Paper Company, and temporary secretary, Arthur H. Lewis. Their scheduled meeting is every other Tuesday evening at Broadwood Hotel, and at the next meeting election of permanent officers will take place.

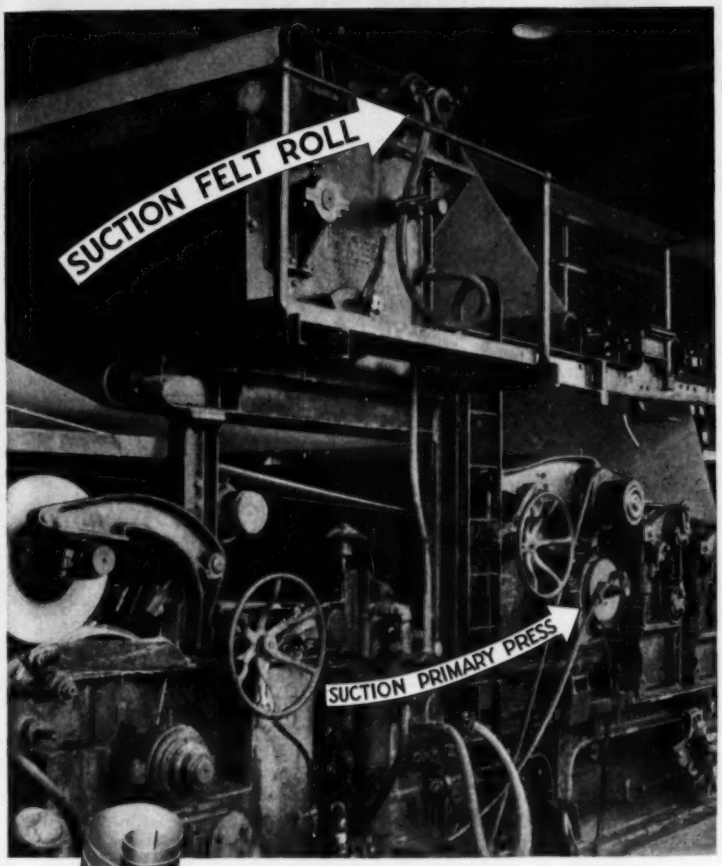
W. E. Swan, Mill Representative for Kalamazoo Vegetable Parchment Company, Kalamazoo, Mich., 930 Drexel Building, is showing quite an attractive package containing glazed shelf and lining paper, heavy waxed paper, cookery parchment, dusting paper, pie tape, dish rags, scouring parchment, and colorful fancy waxed paper.

Charles J. McDowell of the McDowell Paper Mills, has just returned from a three weeks' trip around the east and west coasts of Florida on the yacht *Charmarie*.

Union Radiant Heat Boilers

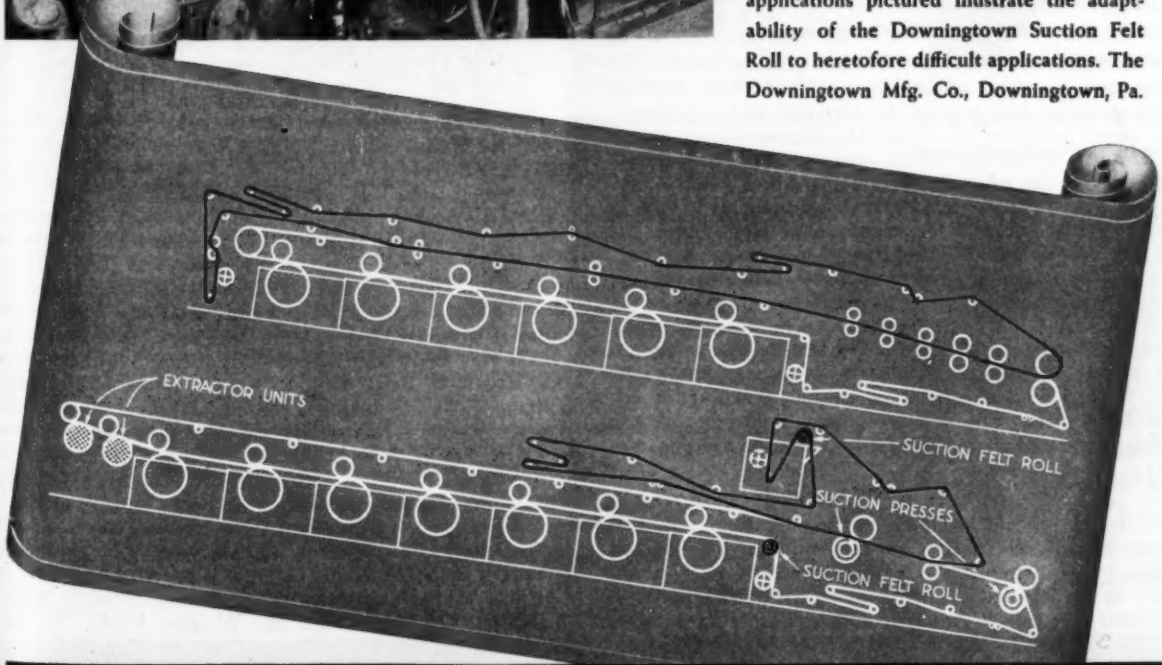
The Union Iron Works, manufacturers of steel boilers, Erie, Pa., has just issued an interesting new bulletin on Union radiant heat boilers, which may be obtained gratis by writing to the company at the address mentioned.

DOWNINGTOWN



Short Top Felt Costs Less *and Lasts Longer*

With the Downingtown Suction Felt Roll you can clean and rejuvenate fourdrinier or cylinder felts without changing felt arrangement, for it requires no more space than a plain felt roll. No drive is needed and the same pump now used for flat boxes can be used. Continuous, uniform, full width "suction without friction" eliminates both slowing down the machine as the felts fill-up and shut-downs for washing and roping. Average felt service life prolonged 25% for there is no stretching of felt and no abrasion or compression of the nap. The novel and profitable applications pictured illustrate the adaptability of the Downingtown Suction Felt Roll to heretofore difficult applications. The Downingtown Mfg. Co., Downingtown, Pa.



KEEP YOUR FELTS CLEAN WITH A SUCTION ROLL

Boston Paper Trade Association Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 25, 1935—One hundred and fifteen members and guests attended the Forty-Ninth Annual Meeting and Dinner of the Boston Paper Trade Association, held at the Algonquin Club Wednesday evening. The following officers were re-elected: President, Frederic W. Main; first vice-president, F. Bendel Tracy; second vice-president, W. J. Raybold; treasurer, T. Charles Casey; secretary, John L. Hobson.

The following committees were appointed:

Executive — Norman Harrower, Linton Brothers, Fitchburg; Charles W. Fields, Baird & Bartlett Company; W. Edwin Porter, Jr., Cook-Vivian Company.

Membership — W. N. Stetson, Jr., Storrs & Bement Company; Royden Loring, Arnold-Roberts Company; Willard H. Loud, Stimpson & Co., Inc.; Hubert W. Lockhart, Von Olker-Snell Paper Company; R. M. Stone, Stone & Forsyth Company.

Arbitration — George W. Wheelwright, chairman; Arthur L. Hobson, St. Croix Paper Company; Irving N. Esleeck, Esleeck Manufacturing Company, Turners Falls, Mass.; Jesse G. Swift, W. H. Claflin & Co., Inc.; Harry C. Thayer, Hollingsworth & Whitney Company.

Nominating — Col. Charles S. Proctor, Proctor Paper Company; John W. Vivian, Cook-Vivian Company; Charles Baird; M. L. Madden, Hollingsworth & Whitney; John E. A. Hussey.

Auditor, George D. Allen, Knight, Allen & Clark, Inc.

The following new members were elected: Regular membership — Brenton C. Pomeroy, Dalton, Mass., proposed by John L. Hobson; Bruce Crane, Dalton, proposed by Frederic W. Main; John R. Halkyard, Providence, proposed by John A. Andrew. Limited membership — C. W. Nelson, Worcester, Mass., proposed by John W. Vivian; Lennox Ransom, Boston, proposed by Willard H. Loud.

Taps were sounded for W. H. Hilton, Philip Weston and Samuel R. Whiting, all of whom passed away during last year.

Plans for Golden Anniversary

It was decided to make the Fiftieth Annual Dinner, to be held next year, an affair of more than usual interest and endeavor to do justice to the standing and importance of the paper industry, especially the Boston Paper Trade Association. President Main gave a brief address of acceptance of the office of president, which he had declined earlier, but was finally prevailed upon to accept.

The expected guest of the evening, the Hon. James M. Curley, Governor of Massachusetts, prevented from attending at the last moment, was represented by Arthur Sullivan, Assistant Attorney General and a member of his military staff. Mr. Sullivan spoke briefly, promising that the Governor would do anything in his power to assist Massachusetts industries and, of course, the paper industry, through his contacts with the Washington administration. He read a letter from the Governor, expressing regret at being prevented from attending the dinner.

The Conquest of Minya Konka

The speaker of the evening, Arthur G. Emmons, 3rd, gave an illustrated lecture on the conquest of "Minya Konka." His introductory remarks were of exceptional interest as he depicted the work of expeditions sent from this country to South America and especially those who had gone out with the idea of conquering some of the highest mountains.

The expedition of which Mr. Emmons was a member consisted of four men who were determined to establish the height of Minya Konka, in China. The expedition had three objectives—first, a survey of the country in a rather general way, and especially the mountain; second, to climb the mountain and establish the height; and third, a study of the animals which were natives in that section.

Mr. Emmons dwelt at considerable length on the topographical features of Chinese territory from the landing at Shanghai and covering the entire distance of the mountain in question. The various steps were illustrated by lantern slides which, without exception, were clear and distinct.

They brought out modes of travel and such phases of Chinese life as the marketing of tea produced in that area. Slides showed natives carrying 300 pounds of tea put up in compact form and stacked sometimes two to three feet above the head of the native. Travel necessitated in reaching the market with this tea was often as much as one hundred miles. Roads were shown consisting of stone steps in some of the more difficult sections, as well as of bamboo bridges constructed on the water.

Mr. Emmons referred briefly to a species of animals which are found in this section of China. He compared the work of the expedition by reference to Dr. Joseph Brock, of the National Geographic Society, and the Roosevelt Expedition to South America several years ago.

The Attendance

Those present included Ralph W. Allen, Harold A. Allen, Lew A. Alliger, George C. Andrew, John A. Andrew, Sumner B. Andrew, S. Guy Ashley, Sidney W. Bartlett, P. M. Beach, Arthur F. Bell, E. D. Bement, G. Blandy, Charles J. Brown, Arthur M. Burr, C. A. Burrell, James C. Campbell, Richard H. Campbell, A. C. Carter, Hubert L. Carter, James Richard Carter, R. B. Case, T. Charles Casey, Howard E. Chase, Nathan S. Clark, T. Charles Clark, E. L. Cummings, Frank B. Cummings, Ralph L. Day, S. D. DeForest, Adna C. Denison, Wm. E. Doble, Charles H. Dodge, J. J. Dwier, Robert W. Ely, Arthur B. Emmons, 3rd, Arthur F. Fay, C. W. Fields, Charles Foster, H. C. Fowler, B. V. Gardiner, George M. Graves, John R. Halkyard, J. F. Halloran, Eugene O. Hanson, F. D. Hatch, Edgar P. Hay, Clifford H. Harris, Ralph Helem, John L. Hobson, E. F. Howarth, John E. A. Hussey, John Kelley, Jesse F. Keville, Fred B. Korbel, Edward H. Little, E. R. Lyman, Hubert W. Lockhart, W. H. Loud, G. C. MacDonald, M. L. Madden, Frederic W. Main, William J. McLellan, H. A. Moses, E. J. Murphy, Fred W. Nason, Charles W. Nelson, Robert Nivison, C. E. Newell, Robert E. O'Neil, Kilby P. Osborn, Maurice A. Park, Charles B. Peto, Edward W. Pierce, Richard F. Piper, Leon N. Poore, W. Edwin Porter, Charles S. Proctor, Lennox Ransom, Walter J. Raybold, Ernest S. Reid, John E. Roach, Ralph P. Robinson, William Ross, William C. Ross, Horace B. Sargent, Charles A. Shaw, Harold B. Simmons, Walter Simonds, Albert R. Smith, Joseph D. Snell, William N. Stetson, Jr., R. M. Stone,, George S. Stuhr, A. V. Sullivan, Edward Sussenguth, Jesse G. Swift, J. Gilbert Swift, Jr., R. P. Teele, Charles W. Townsend, Charles S. Trefrey, H. H. Tucker, Harold C. Upham, W. Gardner Very, John W. Vivian, Van R. Walden, George Wheelwright, John N. Whitney, John R. Whitney, E. L. Wood, Fred L. Wood, Harry R. Woodward, E. M. Wright, P. D. Wyman, Charles A. Young, I. C. Young, Leon H. Young, John D. Zink.

January 10, 1935

GENTLEMEN:

We have been planning for some time to drop you a line of appreciation for your help in solving for us a very important material handling problem. In the early summer we had to make a change in the location of our roll storage warehouse and we erected a large addition to our present plant to take care of this stock. After going over all the conventional types of roll handling equipment by overhead cranes and other methods which greatly cut down our headroom, we decided to order a Baker Roll Handling Truck, this truck having to take care of 4000 lb. rolls of about 55" diameter by 77" long, stacking these 15½' from the highest position.

In moving our stock to the new location it was necessary to make a quick transfer, and to say that the Baker Hy-Lift Roll Handling Truck took care of this job to our complete satisfaction is putting it mildly. This truck picked up, transferred, and stacked 295 Rolls in one day, a thing which we would not have thought possible, this work being done without re-charging the_____battery.

Our warehouse is about 230' long x 120' wide, and by using the Baker Roll Handling Truck we have been able to increase our storage capacity by about 20%. With only two men we are able to take care of in-coming stock, transporting and piling as many as 175 rolls in one day. In addition to this work it takes care of our production requirements, which means taking down and delivering to the elevator about 60 rolls per day.

The Baker Roll Handling Truck, from the time that it was placed in service, has been in operation without a minute's lost time, and on occasions being in constant operation for two shifts, from 7:00 A. M. to 10:30 P. M. handling all of our warehouse stacking and production delivery to our elevator, to our complete satisfaction. During this time the truck has not cost us a cent for upkeep, with the exception of the cost of battery recharge which is done nightly without interfering with the use of the truck.

We feel that the savings brought about by the reduced force required in our warehouse, and the very much safer and quicker delivery of roll stock to our machines, to say nothing of the increased storage space in our warehouse, due to our piling rolls five high, will enable us to write off the cost of this machine early this coming Spring.

We consider our Baker Truck to be the most valuable piece of equipment for material handling in our plant and are more than pleased with the efficiency with which it is handling our work.

Yours very truly,

(copy of this letter on request)

This is but one of the many standard and modified-standard Baker trucks designed especially for handling paper in rolls or sheets, in boxes or on skids. A Baker engineer, trained in the analysis of handling problems, will place himself freely at your disposal. There is no obligation. THE BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Raulang Company, 2162 West 25th St., Cleveland, O.

The Most Economical way to handle material is NOT to HANDle it

Baker

Delaware Valley TAPPI Hears Carson

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry met at the Engineers' Club, Philadelphia on Friday evening, March 22. Harvey B. Cannon presided as chairman.

The speaker was F. T. Carson, associate physicist, Paper Section, Bureau of Standards, Washington, D. C. who talked on the physical testing of paper and was introduced in a most ingenious and pleasing manner by R. M. Cobb, Research Chemist of the Lowe Paper Company. The manner of introduction was a comparison of the developments of paper testing and paper testing instruments with the arrival of the stork, an illustration of which had been drawn upon the blackboard, cartoon fashion.

Mr. Carson handled his subject in a thought provoking manner as evidenced by the range of the discussion. He compared two essentials of paper testing methods. These essentials are that tests be able to fulfill the functions both of plant control and use requirements.

Vagueness of definitions and looseness of terminology were presented as being among the greatest difficulties encountered in standardization work. In the discussion later it was also brought out that lack of standardization of instruments and methods produce a wide range of varying results, between recognized technicians.

Mr. Carson stimulated the imagination of those present by assuming that some selective solvent over night had destroyed all paper and his elaboration of the results was very humorous. Mr. Carson has reached the conclusion that our testing problem is complicated by our inability to express ourselves understandingly and illustrated his meaning by simple illustrations and also by technical illustrations of misunderstandings which had occurred in his experience. Particular reference was made to recent work on the water vapor permeability of paper.

The discussion was arranged systematically with reference to discussion group leaders and a large number of questions were disposed of comprehensively and with dispatch because of this arrangement.

Those in Attendance

Among those present were: D. M. Sutherland, Trenton, N. J.; J. d'A. Clark, Scott Paper Company, Chester, Pa.; C. E. Peterson, Riegel Paper Corporation, Riegelsville, Pa.; Charles McDowell, McDowell Paper Mills, Manayunk, Pa.; R. G. Macdonald, Secretary of TAPPI, New York; H. C. Schwalbe, Dill & Collins Inc., Philadelphia; H. P. Cannon, Container Corporation of America, Manayunk; Miss R. M. Cobb, Lowe Paper Company, Ridgefield, N. J.; Miss L. V. Hans, Pettingill Inc., New York; C. W. Hoffman, Riegel Paper Corporation, Milford, N. J.; G. M. Suydam, Riegel Paper Corporation; George Heidrich, Wallace & Tiernan Inc., Newark, N. J.; J. H. Brougham, Penn Fibreboard Corporation, York, Pa.; A. W. Wickham, MacAndrews & Forbes Company, Camden, N. J.; W. C. Jay, Sanitary Products Corporation of America, Philadelphia; R. M. Bates, Thos. M. Royal & Co., Philadelphia; F. L. Shonkwiler, Midwest Fulton Machine Company, Dayton, Ohio; Jasper Purcell, McDowell Paper Mills, Manayunk; M. Craig Maxwell, same company; F. J. McAndrews, same company; F. W. Brainerd, Scott Paper Company, Chester; L. R. Cramblet, Whiting-Patterson Company; H. P. Taber, Taber Laboratory, Wilmington, Del.; E. J. Albert, Thwing Instrument Company, Philadelphia; S. M. Hesser, Hinde & Dauch Paper Company, Gloucester, N. J.; J. H. Fritz, National Oil Products Company, Harrison, N. J.; Frederick Streicher, Dill & Collins Inc., Philadelphia; G. R. Haggerson, Paper Makers Chemical Corporation, Easton, Pa.; E. S. Hinman, Penn Fibreboard Corporation, York; Jacob Edge, Downingtown Manufacturing Company, Downingtown; W. R. Maull, Dill & Collins Inc., Philadelphia; A. S. Hall, Thwing Instrument Company, Philadelphia; N. C. Cooper, Du Pont Company, Wilmington; E. N. Glauner, Downingtown Manufacturing Company, Downingtown; J. E. Plumstead, Jessup & Moore Paper Company, Elkton, Maryland; V. A. Belcher, N. J. Zinc Company, New York; F. W. Varden, Barber Asphalt Company, Philadelphia; F. A. Steele, N. J. Zinc Company, Palmerton, Pennsylvania; G. A. Albert, Phenolite Company, Philadelphia; C. W. Rivise, Philadelphia; J. Roslund, Moore & White Company, Philadelphia; E. N. Wennberg, Continental Diamond Fibre Company, Bridgeport, Pa.; Adolf Schnable, Mazer Paper Company, Lansdowne, Pennsylvania; Leslie Justice, Container Corporation of America, Manayunk; N. I. Bearse, Lowe Paper Company, Ridgefield, N. J.; L. Gideon, Individual Drinking Cup Company, Easton, Pa.; H. W. Alden, Lowe Paper Company, Ridgefield, N. J.; J. C. Harper, West Jersey Paper Manufacturing Company, Camden, N. J.; H. D. Childers, Thomas M. Royal & Co., Philadelphia; R. W. Shaffer, MacAndrews & Forbes Company, Camden; Russell Morehouse, Philadelphia Quartz Company, Philadelphia; J. C. Dieffenderfer, Paper Makers Chemical Corporation, Easton; H. L. Becher, Agasote Millboard Company, Trenton; W. H. Mains, Phenolite Division, National Vulcanized Fibre Company, Wilmington; G. E. Landt, Continental Diamond Fibre Company, Bridgeport, Pa.; W. M. Shoemaker, National Vulcanized Fibre Company, Yorklyn, Del.; A. E. Waugh, U. S. Rubber Company, Passaic, N. J.

Michigan Superintendents Meet

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., March 25, 1935—The Michigan Division of the American Pulp and Paper Trade Superintendent's Association held its monthly meeting Thursday evening, March 21, at 7:00 P.M. at the Park-American Hotel, with fifty present.

A dinner preceded the meeting, after which, with Arthur Cole of the Rex Paper Company presiding, it was announced that Harry G. Specht, vice-president and general manager of the Eastwood Neally Corporation of Belleville, N. J., would address the meeting. His subject was "Practical Aspects of Fourdrinier Wires in Operation."

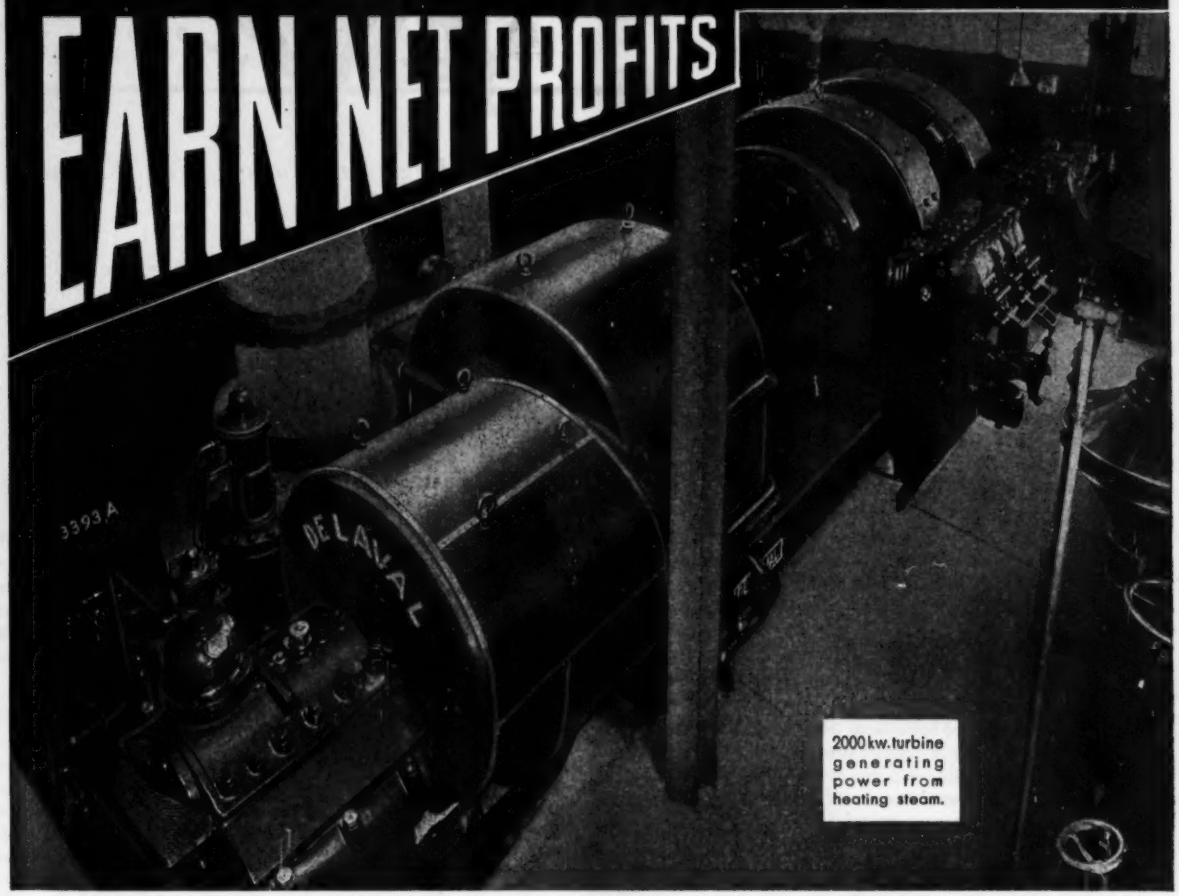
Mr. Specht's talk was accompanied with a series of slides showing the manufacturing process of wires, but principally pointing out the problems encountered in operation and the solution of them, which often plague the average paper maker. The address was very interesting and instructive and was roundly applauded at its close.

An open Forum followed in which Mr. Specht was besieged with questions from the superintendents, all of which he answered promptly and satisfactorily, showing he was a master of his subject.

Stream Pollution Chemist Wanted

The United States Civil Service Commission, Washington, D. C., has announced that there is a position open for a principal chemist to handle stream pollution investigations for the U. S. Public Health Service. The salary is $5,600 a year. Applications must be filed with the Commission before April 8, 1935.

De Laval Steam Turbines EARN NET PROFITS



AS COMPARED WITH ENGINES OR TURBINES OF OLDER MODELS, De Laval Turbines of present day design save enough on fuel and upkeep to show a good annual profit after deducting all charges.

Among the reasons for higher efficiencies are *better design of steam passages, superior finish* maintained by the use of new alloys, *more favorable arrangement of wheel chambers* and other parts, and *improved governing devices.*

Advances in metallurgy and in heat treatment, as taken advantage of in the redesign of rotors and casings, permit of *higher speeds* and of the *use of steam at higher pressures and temperatures,* all of which contribute to reducing greatly the steam consumption per hp.

These gains are large in the region of high steam pressures and temperatures, and surprising economies are frequently possible by super-imposing high pressure boilers and turbines over existing steam using equipment.

Facts and figures will be submitted by our engineers upon learning of your conditions and requirements.

De Laval Steam Turbine Co., Trenton, N.J.

Manufacturers of Steam Turbines, Centrifugal Pumps, Propeller Pumps, Rotary Displacement Pumps, Centrifugal Blowers and Compressors, Worm Gears, Helical Speed Reducing Gears, Hydraulic Turbines, Flexible Couplings and Special Centrifugal Machinery. Sole Licensee of the Bauer-Wach Exhaust Turbine Systems

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Toledo, Ohio—The Toledo Paper Box Company, 1124 True street, manufacturer of paper boxes and containers, has taken out building permit for new one-story addition to plant on adjoining site, 1120 True street, to be used primarily for storage and distributing service. General erection contract has been let to the Bentley Construction Company, 201 Belmont avenue, city, and superstructure will begin at early date.

Long Island City, N. Y.—The Service Container Corporation, Harry Levine, president, organized to manufacture paper boxes and containers, has leased space in local building at Forty-seventh avenue and School street, totaling about 32,000 square feet floor space, and will occupy for new plant. It is proposed to begin operations at early date.

New York, N. Y.—Samuel Kipnis, President of the National Container Corporation, Long Island City, N. Y., writes: "On page 28 of the March 14 issue of the PAPER TRADE JOURNAL you published a notice to the effect that the National Container Corporation of Bordon and Review avenues, Long Island City is considering the early establishment of a new branch plant at Charlotte, etc. This letter is written to you to advise that at no time was this corporation considering, and is not now considering, the establishment of such a plant."

Fort Saint Joe, Fla.—Alfred I. duPont and associates, Jacksonville, Fla., represented by Edward Ball, Barnett National Bank Building, Jacksonville, are concluding negotiations for purchase of a tract of close to 250,000 acres of land in Franklin, Liberty and Gadsden Counties, vicinity of Fort Saint Joe, with extensive tract of slash pine, to be used as source of raw material for proposed new paper mill in this vicinity. Plans for proposed mill are now in preliminary stage and purchasing interests are said to be conferring with George F. Hardy, 309 Broadway, New York, N. Y., paper mill engineer, relative to development of project.

Excello, Ohio—The Crystal Tissue Company, Middletown, Ohio, manufacturer of tissue papers and kindred stocks, will carry out expansion and improvement program in power house at Excello mill by day labor. As recently noted in these columns, considerable new equipment will be installed, and purchases will be made under direction of W. I. Barrows, Reibold Building, Dayton, Ohio, mechanical engineer, including ash-handling, piping and other apparatus. No estimate of cost has been announced. Work is expected to be completed in the spring.

New York, N. Y.—The Duponte Envelope Corporation has been organized with capital of 200 shares of stock, no par value, to operate a local paper converting plant for the manufacture of commercial envelopes, paper bags and allied products. New company is represented by Sol Nathan, 175 Fifth avenue, New York.

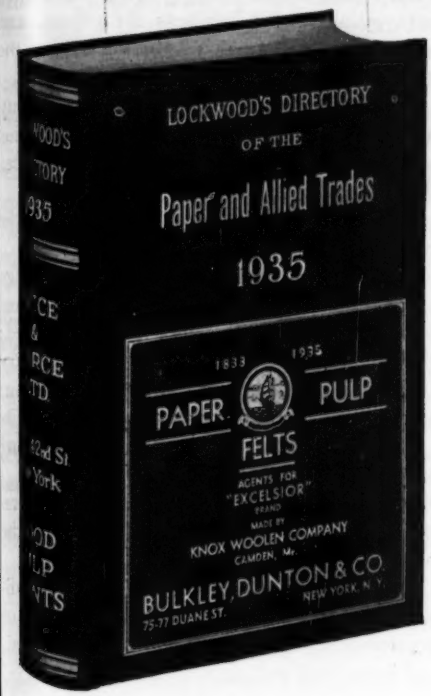
Savannah, Ga.—The Southern Newspaper Publishers' Association, care of E. K. Gaylord, Oklahoma City, Okla., president, is selecting a site in Georgia for early construction of new newsprint mill for paper stock for a large group of members of the organization, using Georgia slash pine as raw material. It is proposed to consummate negotiations for mill property early in April, following which plans will be drawn at once for initial plant units, including pulp mill, power house and miscellaneous structures. Entire project is reported to cost over $1,000,000, including timbering operations.

Long Island City, N. Y.—The J. W. McCabe Company, 91 Greene street, New York, N. Y., manufacturer of board mounts and kindred cardboard and paper products, has leased space in five-story building at 30-30 Northern boulevard, Long Island City, and will occupy for a new converting plant. Present factory will be removed to new location, where capacity will be advanced.

Everett, Wash.—The Weyerhaeuser Timber Company, Pulp Division, Tacoma Building, Tacoma, Wash., has arranged with the City Council at Everett for the early construction of a pipe line system to site of proposed local pulp mill, previously referred to in these columns, to provide for a supply of about 22,000,000 gallons of water per day. The line will be constructed by the municipality at a cost estimated at $100,000, comprising 33-inch and 16-inch steel pipe. Financing is being arranged by the city. The Weyerhaeuser company has a tract of land, 200 x 800 feet, in the Bayside district for the new pulp mill, fronting on the line of the Great Northern Railway. Property will be used for a group of mill units, to be equipped for initial output of about 150 tons of unbleached sulphite pulp per day. O. C. Schoenwerk is company engineer in charge, first noted address, and will supervise construction and equipment installation. F. R. Titcomb is general manager.

Sao Paulo, Brazil—The Tubize Chatillon Corporation, 2 Park avenue, New York, N. Y., manufacturer of viscose rayon products, is considering the construction of a new mill in vicinity of Sao Paulo, where it is proposed to select site at early date. Plant will be developed for large capacity and will consist of several large one and multi-story units, with power house and other mechanical structures. It is understood that company will remove considerable machinery from mill at Hopewell, Va., closed down for a number of months, to new location. Entire project is reported to cost in excess of $500,000. Raymond B. Burrows, plant manager at Hopewell, will supervise construction of new plant, it is said, at Sao Paulo.

New York, N. Y.—Godfrey Paper Exports, Inc., has been organized with capital of $20,800, to deal in paper products of various kinds. New company is represented by Nordlinger, Riegelman & Cooper, 420 Lexington avenue, city, attorneys.



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SOCIAL SECURITY BY PAYROLL TAX SAID TO BE A GREAT DELUSION

That the payroll tax incorporated in the Wagner-Lewis Bill will actually reduce purchasing power, raise prices and increase unemployment is graphically shown in a booklet issued by Farrel-Birmingham Company, Ansonia, Conn., under the title of "Social Security—The Great Delusion." The authors, Allen W. Rucker and N. W. Pickering, president of the company, condemn the proposed legislation and advocate a return to proven American methods that will accomplish the result wanted.

Pointing out that the wage-earners' share of values produced by manufacture has remained constant for years, the booklet cautions legislators against the harm resulting from attempts to interfere with economic law. "The significance of the uniform share paid to labor should not be overlooked. Nothing has been able to change it—good times, bad times, legislation, union activities, and even the NRA. (Admittedly designed to increase the wage earners' share of values produced) failed utterly. Labor still receives just 36.3 per cent of total values added by manufacture."

The authors point out that the manufacturer can do only two things about the proposed payroll tax—(1) pay it and reduce wage rates by the amount of the tax, or (2) make no reduction in wage rates but increase prices, thus reducing demand and employment. The payroll tax positively cannot be absorbed by industry.

The inability of industry to absorb the payroll tax is seen when the 1933 Treasury reports are analyzed: 68 per cent of the companies reported a total deficit of $966,175,171, while only 32 per cent of the companies reported some profit. For these 68 per cent of the companies, or more than two-thirds, the payroll tax would mean $212,000,000 additional loss, and would unquestionably result in shutting down some plants, going out of business for others, and thus decrease employment still further—the very thing the tax was designed to prevent.

The real basis of security is stated to be the productivity of enterprise and a greater production and consumption of physical goods, based on a true balance of wages, prices and costs, enabling a higher standard of living.

The authors offer as a sound basis of social security the following program:

"Relieve manufacturers of the burden of fixed wage rates in order that they may adjust production costs and prices to the point where maximum demand is stimulated;

Permit flexible working hours in order that each industry may develop its maximum efficiency of low-cost production;

Encourage industry to increase the productivity of its workers (and thereby their *annual* wage) by investing capital in improved processes and equipment;

Encourage investors to supply capital to industry by removing artificial hazards and inspiring confidence in the possibility of reasonable profit.

"Herein lies the true basis for social security; a condition which makes it possible for the greatest number of people to freely produce, exchange and consume the maximum quantity of industrial and agricultural products."

FOREIGN PAPER TRADE GAINS

Exports of paper from the United States during January show a slight rise in aggregate value compared with the corresponding month last year, according to the Forest Products Division of the Department of Commerce. The volume of shipments of most items were greater than a year ago, although in many instances these increases were accompanied by a decline in average value.

Increases were registered in coarse papers and boards rather than fine papers and specialties. Exceptions were surface-coated papers and writing papers, shipments of which increased 46 per cent and 12 per cent respectively. In the coarse paper and board group, newsprint exports rose 6 per cent in volume, wrapping papers (including greaseproof and waterproof) 30 per cent, box boards 6 per cent, wall boards 10 per cent, and vulcanized fiber 28 per cent. Total exports of paper and products during January reached a value of $1,561,223 as against $1,500,775 during January 1934.

A greater increase was registered in United States shipments of paper base stocks during January. Exports of sulphite wood pulp increased in volume from 9,671 tons to 13,732 tons and in value from $432,926 to $770,139. Exports of rags and other waste stock, which rank second in importance, dropped in volume from 3,380 tons to 1,700 tons, but rose in value from $54,953 to $59,535. Exports of other classes of wood pulp increased from 153 tons to 322 tons and in values from $9,606 to $17,212. Three thousand three hundred eighty-six cords of woodpulp valued at $20,195 were also exported this year as against none last year. Exports of this group during January were

valued at $867,081, an increase of $369,596, or 74 per cent, compared with the corresponding month last year.

Imports of paper and paper products into the United States during January were valued at $6,399,259. Newsprint paper to the amount of 160,973 tons accounted for $5,674,647 of the total mentioned. The remaining 89 per cent comprised principally boards, other printing papers and kraft wrapping papers. Second to newsprint in the value of receipts were imports of cigarette papers amounting to 919,783 pounds valued at $245,426. Imports of newsprint dropped off 4 per cent in volume and 3 per cent in value compared with those recorded for the corresponding month in 1934. Approximately the same decline was registered in the volume of imports of cigarette papers, although the aggregate value was greater by about $4,000. Of interest in the January importations is the heavy increase in receipts of the item classified as leatherboard, test and wall boards.

Imports of paper base stocks into the United States during January reached a somewhat higher total than paper, being valued at $6,825,349. Increases were registered in importations of pulpwoods, mechanical groundwood, unbleached sulphite and unbleached sulphate (kraft) pulps, rags, and other waste stock. Imports of bleached sulphite were about the same as during the corresponding month last year.

Flax Paper Industry Looms for Oregon

"A new industry for Oregon," says the Budget of Astoria, Ore, "which will utilize flax grown in this state for manufacturing cigarette paper is now assured and contracts with growers for the necessary acreage of flax have already been made, according to word received by the Oregon Experiment station, staff members of which have assisted in launching the new project.

"Cooperating with the commercial backers of the industry have been B. B. Robinson, federal specialist in flax investigations stationed at the college, and G. R. Hyslop, chief of the division of plant industry.

"The project under way is an extensive experiment in the utilization of raw flax fiber by making it directly into cigarette paper. The flax will be decorticated mechanically and shipped to France without retting to be manufactured there.

"At present linen rags are used solely for manufacturing this product because of their cheapness, and the United States imports its entire supply. The Champagne Paper Corporation of New York has been experimenting with this new cheaper process in the south Atlantic states but difficulties developed there which it is believed do not exist here in Oregon.

"For this year's operations the company has contracted for about 900 acres of flax. If the trial proves successful it will mean a substantial expansion of the flax acreage in this state, say the experiment station workers."

Turners Falls Mill Starts

[FROM OUR REGULAR CORRESPONDENT]

TURNERS FALLS, Mass., March 26 1935—About 50 men were employed the past week at the local mill of the International Paper Company and 125 will be employed when the two machines are in full operation.

Miami Valley Paper Industry Improves

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, March 25, 1935—Significant figures showing an improvement in the paper industry and other branches of business in the Miami Valley were submitted the past week at Hamilton, where statistics and reports assembled by the Chamber of Commerce in that city, showed a 43.4 per cent increase in industrial employment on March 15 last compared with the same date last year, and a 16 per cent in bank debits, or checks written to individual accounts, for the two and one-half months ending March 15 as compared to the corresponding period in 1934.

The Champion Coated Paper Company had a payroll on March 15 of 2,626 persons compared to 2,300 a year ago. In a few days' time it was shown that 26 persons had been added to the rolls, with the number steadily increasing from day to day in March. Other paper firms, the Beckett mills, and the firms catering to the paper trade, such as the Black-Clawson Company, and the felt mills, also showed promising business.

The Miamisburg Paper Company has had a regular run of business for many months and prospects for the future are bright. The mills are running on envelopes and Bristol board.

The envelope paper output is taken largely by the American Envelope Company of West Carrollton, three miles distant. The American's output of 10,000,000 envelopes daily has continued with clock-like regularity. The product not used by the American company is marketed in other sections of the country, the Miamisburg mills having no difficulty in finding a demand for its entire output.

The mills have not experienced a shutdown of any importance, it is understood, during the period of the depression.

Awards for Government Paper

WASHINGTON, D. C., March 27, 1935—The Government Printing Office has announced the following paper awards:

Barton, Duer & Koch Paper Company will furnish 300,000 pounds of manila calendered tag board in 23¼ and 28½ inch rolls at 7 cents per pound.

The Whitaker Paper Company will furnish 3,239 pounds (51,000 sheets) of 25 per cent rag white bond paper at 12.2655 cents per pound.

The Old Dominion Paper Company will furnish 5,000 pounds (34,000 sheets) of 24 x 38 sulphite manila paper at 5.15 cents per pound.

The R. P. Andrews Paper Company will furnish 2,000 pounds (16,000 sheets) of 50 per cent rag 20 x 25 blue laid cover paper at 13.09 cents per pound. Bids for all of these items were received on March 13.

Beveridge Paper Co. Suffers Fire Loss

INDIANAPOLIS, Ind., March 25, 1935—Damage caused by fire and water at the Beveridge Paper Company plant, 717 West Washington street, here, recently, may reach $70,000, insurance adjusters decided late last week after having examined the damaged stock. Most of the loss was due to water. A small blaze starting in a lacquer barrel on the third floor released 21 automatic sprinkler heads which flooded the floors with more than 80,000 gallons of water before they could be shut off. The fire was out on arrival of the first department apparatus only three blocks away.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Water Resistance of Paper*

This method is based on the dry-indicator method of Carson (*3*) (*4*) and modifications of it developed by the TAPPI Paper Testing Sub-committee on Water Resistance under the direction of Abrams (*2*) and Codwise. (*7*) (*8*) (*9*) It consists in bringing one side of the test specimen in contact with water and finding the time required for the water to pass through the specimen, as indicated by the development of color in an indicator powder consisting of a mixture of water-soluble dye, sugar, and starch. The sugar serves the two-fold purpose of masking the color of the particles of dye as long as they are dry, and of absorbing the transuded moisture and holding it in close proximity to the dye. The starch increases the stability of the mixture.

Apparatus

Any form of apparatus for applying the test may be used which fulfills the following conditions: (1) one surface of the specimen is wetted uniformly at the moment the count of time is begun; (2) the indicator on the opposite surface is continuously visible; (3) no moisture reaches the indicator except that which passes through the specimen from the wetted surface; (4) no moisture which does so reach the indicator escapes from contact with it. Two sets of apparatus have been found suitable for the testing of paper and fiber boards in general.

Set No. 1.—For each specimen tested simultaneously there is required a glass cylinder with ground ends about 1.5 to 2 inches in diameter and about the same length; a polished glass plate about 4 inches square; a suitable support, such as a ring stand; a small mirror; a 2-pound weight; melted beeswax; a shaker to distribute the indicator; a desiccator; and a stop watch. The mirror should preferably be mounted so as to be adjustable to any required angle. The apparatus (*9*) (*6*) is illustrated in Figs. 1 and 3.

Set No. 2.—For each group of 5 specimens tested simultaneously there is required a vessel about 9 inches in dia-

*TAPPI Standard T433m (March, 1934).

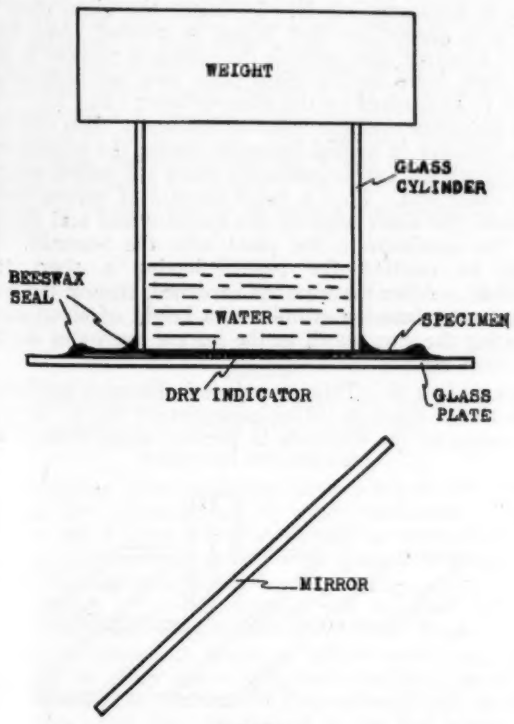

FIG. 1
Cylinder, weight, and mirror apparatus.

FIG. 2
Method of preparing the specimen, showing the watch glass being sealed over the indicator powder.

meter and holding two or three quarts of water; five 2-inch watch glasses; a transfer rack (Fig. 4); a medicine dropper; melted beeswax; a shaker; a desiccator; and a stop watch. The rack of Fig. 4 is formed by bending wire into a series of 5 horizontal loops as shown, and one vertical loop for a handle. Each contact point is soldered to make the framework more rigid. The loops slope a little so that the specimens lying on them touch the water first at one edge. With the contact proceeding from one side, air bubbles are not trapped underneath. The apparatus is illustrated in Figs. 2, 3, and 4. (See reference (*6*).

A convenient shaker and desiccator suitable for either set of apparatus is illustrated in Fig. 3. The shaker is prepared from a 10-cc screw-top vial by cutting away most of the metal of the flat portion of the top, fitting a 70-mesh wire screen inside the top, and screwing it back in place. The desiccator is made of a small wide-mouthed bottle containing anhydrous calcium chloride covered with a layer of glass wool. A hole is bored in the cork stopper just large enough to admit the shaker. The bottle remains on its side and the vial is inserted through the hole with the screened end inside.

For papers that require a very short time to test, such that an edge seal is not required and but one specimen can be tested at a time, the float arrangement (*5*) shown in Fig. 5 will facilitate the test. It is made of a thin-walled aluminum pan about 5 inches in diameter and 1 inch high with a hole 2 inches in diameter cut in the bottom. The surface is coated with paraffin or beeswax to make it more water repellent. The watch glass is clamped over the specimen by means of a wire-frame clamp hinged at one side and fastened under a spring at the opposite side. In the absence of the float such papers can be supported by a hollow cylinder having the upper end barely submerged under the surface of the water in a suitable vessel, while the watch glass is placed over the indicator. Such a cylinder may also be found useful in supporting an occasional paper whose surface is so easily wetted that it would be difficult to float it unsupported when prepared as illustrated in Fig. 2.

Reagents

1. Indicator.—The water-transudation indicator is composed of pure cane sugar (such as "Domino" sugar), pure soluble starch, and methyl violet dye (Du Pont N. E. Methyl Violet, National Aniline and Chemical Co. 2 B. P. Methyl Violet, or equivalent). Grind each ingredient separately until it all passes through a No. 100 screen, and completely dry it in a desiccator over $CaCl_2$ before making the mixture. When dry, weigh and mix the following proportions by weight:

Sugar	45
Soluble Starch	5
Dye	1

Mix the ingredients by screening repeatedly through a No. 60 screen until the mixture is uniform. Mixing the components of the indicator by screening is essential to avoid discoloration which occurs if they are ground together. Keep the indicator in a desiccator when it is not being used.

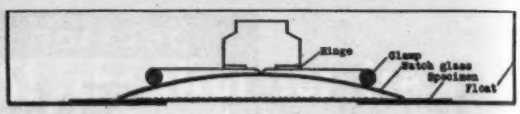

FIG. 5

Cross section of float for applying the dry indicator method of testing for water resistance.

2. Water.—Water of fair purity, such as the usual drinking water, is suitable.

Test Specimens

The test specimens shall be cut from different portions of the test sample in such a way as to be thoroughly representative of it. They shall be free from folds, wrinkles or other blemishes not commonly inherent in the paper. A convenient size is about 2.5 inches square. The specimens shall be so prepared that five are tested from the wire side and five from the felt side. The expression "from the wire side (or felt side)" shall be interpreted to mean that water is applied to the side designated and the penetration proceeds therefrom.

Procedure

The tests shall be made on material conditioned according to the official method for conditioning and in the atmospheric conditions therein specified. Either of the following procedures may be used. For each procedure the temperature of the water shall be maintained at 20.5 to 21.5 deg. C.

Procedure A.—This procedure is recommended especially for testing products having a high degree of water resistance, such as fiber boards, but is applicable to any sort of material.

Use apparatus set No. 1. Place the glass plate on a suitable support so that it can be viewed from beneath with a mirror, and sprinkle the indicator powder in a thin, uniform layer on the glass plate over an area equal to that to be covered by the glass cylinder (Fig. 1). Center the specimen over the layer of indicator. Dip one end of the cylinder in melted beeswax, center the waxed end on the specimen, and immediately place a 2-pound weight on the other end. Pour a small amount of melted beeswax around the outer edge of the cylinder and seal the edges of the specimen to the plate with the beeswax. (This may be omitted for papers having a short testing period). After the wax has hardened, remove the weight, pour water into the cylinder to a height of about ¾ inch, starting the stop watch at the instant the water is poured in, then replace the weight.

Procedure B.—This procedure is likewise applicable to any sort of material. Use apparatus set No. 2. First seal the edges of the specimen to prevent water from entering

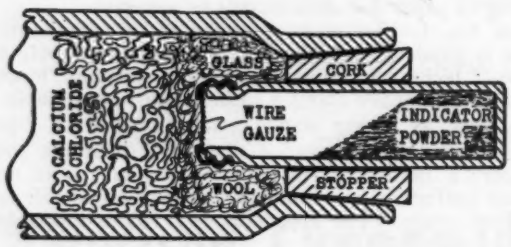

FIG. 3

Longitudinal section showing the construction of the desiccator and shaker.

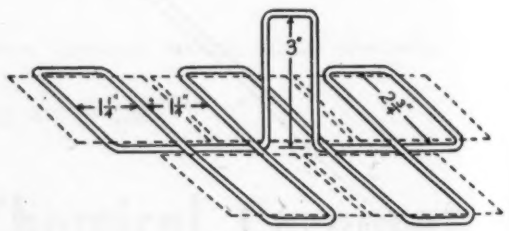

FIG. 4

Wire rack for simultaneously floating five prepared specimens.

through the edges and reaching the indicator without going entirely through the material. Grasp the specimen at the center with thumb and forefinger as a pivot and dip into melted beeswax to a depth of ⅛ inch; rotate 90 degrees and dip the next edge; and repeat until all four edges are saturated and sealed. (Homogeneous, non-laminated materials will in general not require this edge seal). When the wax has hardened, lay the specimen on a smooth surface, and sprinkle the indicator powder on it in a thin, uniform layer by gently tapping the inverted shaker. Cover the indicator with a 2-inch watch glass and seal it on with melted beeswax applied with a medicine dropper as illustrated in Fig. 2. (A few materials may be found, such as those requiring many hours in contact with water, or boards that warp badly, that will give trouble by the beeswax seal breaking loose during the test. For such materials a mineral pitch, hard and tough at ordinary temperatures, should be substituted for the beeswax, and applied in exactly the same way). Float the specimen thus prepared on a vessel of water, starting the stop watch at the instant of contact. Several specimens may be floated simultaneously if the length of the testing period is great enough to permit adequate attention to all the specimens. The rack shown in Fig. 4 is used for this purpose. Lay one specimen on each horizontal loop in the position indicated by the dotted lines and lower the rack gently into the water so as to leave the specimens afloat.

For papers having a short testing period, when it is not necessary to seal the cover glass on, the float shown in Fig. 5 may be used; or the submerged cylinder may be used to support the specimen and cover glass. In all cases contact with the water should be made at a slight angle to avoid trapping air bubbles underneath the specimen. Examine each specimen after the test, and if there is evidence of uneven wetting discard the result.

Measurement of time of transudation.—Watch the test specimen continuously for a change in the color of the indicator, and measure the time interval from the instant of contact with the water until the rate of change in the color of the indicator is at a maximum. For most ordinary papers this time interval is conveniently determined as the mean of the values corresponding to the development of pronounced color in one-fourth and in three-fourths of the area covered by the indicator. For materials on which the color develops uniformly over the whole area it may be necessary to tabulate the values of the time interval against the intensity of the color to determine the maximum rate of change.

Report

The report shall give the average, the minimum, and the maximum values of the time of transudation in minutes from the wire side and from the felt side.

Precision

The reproducibility of the average test results by experienced operators is within 10 to 15 per cent.

Additional Information

Following are some additional devices which have been developed for measurement of water resistance. Their suitability for a given purpose should be determined by comparing the results obtained with them with those obtained by the standard method:

1. Penescope (1).—This device can be used for the dry-indicator test. It consists of a cast brass chamber which is filled with water, a hollow screw cap, with an opening for observation of the test specimen, in which the test specimen is inserted and then screwed tight against the chamber; and pipe connections at top and bottom of the chamber by means of which the water can be introduced, maintained at a desired level, and removed. (Made by Thwing Instrument Co., 3339-41 Lancaster Ave., Philadelphia, Pa.)

2. Curl Tester (4).—This is based on the property which paper posseses of curling about an axis parallel to the machine direction of the paper when one side of it is wetted with water. The paper curls until the water has permeated half way through then starts to uncurl. The time from contact of the paper with water until the paper starts to uncurl is used as a measure of water resistance. The specimen is held in a definite position on a float having an aperture through which a part of the specimen is wetted. The pointed part of the specimen remains dry and serves as a pointer to magnify the movement due to curling. On lowering the operating lever a cover is brought in position, the specimen brought in contact with the water, and the stop watch started. A second depression of the lever at the instant the specimen starts to uncurl arrests the stop watch. (Made by American Instrument Co., 774 Girard Street, N. W., Washington, D. C.)

3. Ground Glass Method (3).—In this method the paper is placed in contact with a ground glass surface, the interstices of which trap transuded moisture and reveal it as a fugitive dark patch when the specimen is lifted. The ground glass plate is placed over a black surface to make the trapped moisture more visible. The specimen is sealed with wax to the end of a glass cylinder to which the water is added. This method is more particularly suited to the testing of very resistant, water-proofed papers.

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(4) Carson, F. T., U. S. Bureau of Standards Technologic Paper No. 326 (Sept., 1926).
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(6) Carson, F. T., Paper Tr J., 98, No. 21:36-38; TS 264-266 (May 24, 1934).
(7) Codwise, P. W., Technical Assoc. Papers, 14:175 (1931); Paper Tr. J., 92, No. 10:55-57; TS 138-140 (Mar. 5, 1931).
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Rainier Pulp Co. Declares Dividend

In view of the satisfactory earnings of Rainier Pulp and Paper Company, it is possible that all the dividend arrearages on the $2 cumulative Class A stock, now amounting to $3.50 a share, will be cleared up by the end of 1935. The company recently declared a dividend of $1 a share on account of accumulations.

The company does not issue interim reports, but for the fiscal year ending April 30 it is believed profits will be substantially in excess of the $458,460 reported for the last fiscal year. There are 100,000 shares of the $2 Class A stock outstanding.

Northern New York Union Council Meets

[FROM OUR REGULAR CORRESPONDENT]

DEFERIET, N. Y., March 25, 1935.—Delegates from paper mill unions in Northern New York attended the district council meeting here this week at which general business conditions were discussed. Among the mills represented were the St. Regis branches at Norfolk, Raymondville and Deferiet and the Algonquin mill at Ogdensburg. Unions represented included the machinists, ground wood workers and firemen. Following the meeting a banquet was held at the St. Regis Inn followed by dancing. W. H. Grosse, president of the council, presided at the meeting.

Practical Limits in the Use of High Pressure and Temperature in Turbines 1,000 Kw to 10,000 Kw Rating*

By W. T. Manning[1]

The industries in general have, with a few exceptions, left the development of high pressure and high temperature apparatus to the utilities. This is but natural, since the economical generation and distribution of power is the entire source of the utilities' profits. We would expect, therefore, that you should, from time to time, inquire what the developments are in this field, so that you could study your own processes to determine where they might be changed, if changes are necessary, to take full advantage of any development in prime mover apparatus.

The Pressure and Temperature Limits

A very general answer to the question of pressure and temperature limits of steam turbines having ratings of 1000 to 10,000 kw., is that as far as mechanical construction is concerned, these limits are, at the present, about 1400 pounds per square inch gage, and 850 deg. F. TT., with 1000 deg. F. TT. being regarded as the ultimate limit to be obtained in the future.

The high temperature results in more difficult problems than the high pressure.

We have machines, at present, operating at 1200 pounds per square inch gage, 825 deg. F. TT. and at 650 pounds per square inch gage and 850 deg. F. TT.

The influence of temperature on design increases beyond 850 deg. F. at a very rapid rate, so that the step between 850 and 1000 degrees is a much more difficult one than the entire advance up to 850 deg. F. For this reason, the advance beyond 850 degrees should be made in gradual steps, so that some experience with the intermediate temperatures, such as 900 deg. F., is first obtained. We have already offered turbines for 1200 pounds per square inch gage throttle pressure and 900 deg. F. TT. These all, however, have been of capacities in excess of 10,000 kw.

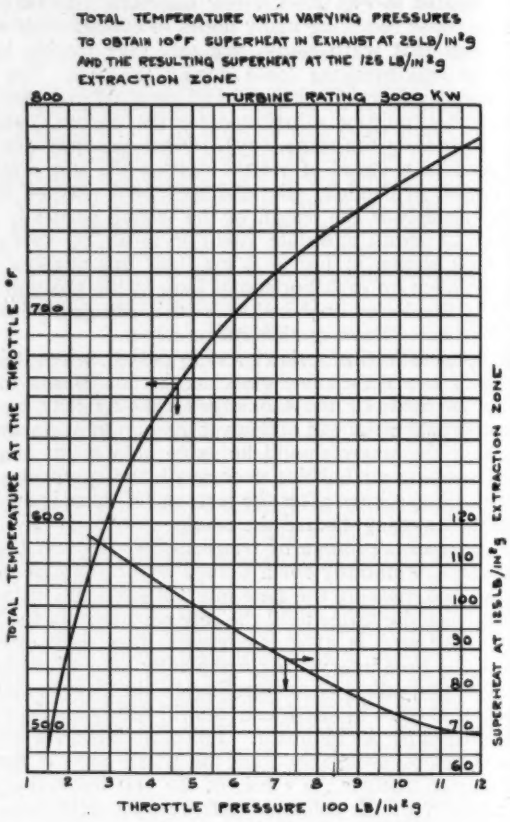


FIG. 2

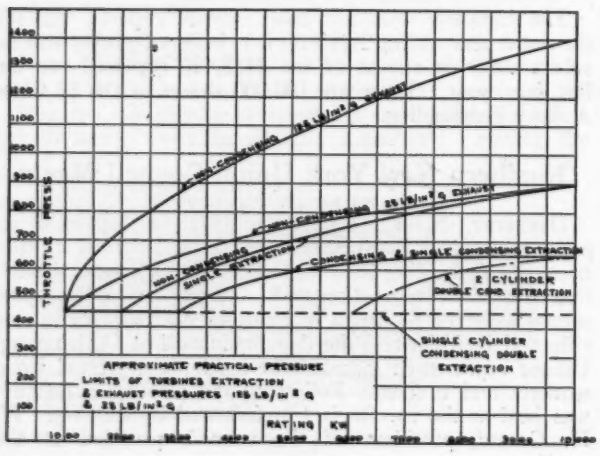

THROTTLE PRESS
SINGLE CONDENSING
SINGLE CONDENSING & SINGLE CONDENSING EXTRACTION
2 CYLINDER DOUBLE COND. EXTRACTION
SINGLE CYLINDER CONDENSING DOUBLE EXTRACTION
APPROXIMATE PRACTICAL PRESSURE LIMITS OF TURBINES EXTRACTION & EXHAUST PRESSURES 125 LB/IN²g & 25 LB/IN²g
RATING KW

FIG. 1

This answer to the pressure and temperature limits, must be modified to get within the practical consideration, since, economically, the extreme conditions could not be justified for some types and ratings. The limits of any one type or rating of a machine must be studied individually to determine whether a practical design can be obtained. By practical design, we mean one that will be profitable both to the purchaser and to the builder. To be profitable to the purchaser, it must be reliable, it must not involve excessive maintenance, and must have an efficiency high enough to justify the extra expense entailed by the use of the steam at the elevated pressures and temperatures. To be profitable to the builder, it must also, first of all, be reliable and, secondly, so constructed that the selling price can be above the cost of construction by such an amount as to give a fair profit.

The builder has, you might say, complete control of the design, and thus control of the cost, but, due to the fact

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.

[1] Design Engineer, Westinghouse Electric and Manufacturing Company, Philadelphia, Pa.

that the turbine elements have a limited efficiency, it becomes essential to build in the turbine a certain minimum amount of these elements so arranged as to result in a machine possessing reliability and the necessary efficiency to justify the purchaser's adopting the higher conditions. The design resulting in the required efficiency frequently results in too costly a machine.

Fig. 1 indicates, in a very general way, about what we would expect the practical pressure limit to be for the various types of machines. There have been machines built above this range but if all recent installations were considered, a very few of them would be found to lie above the limits indicated.

The Paper Mill Requirements

In general, you desire little or no superheat in the steam for the driers, which is utilized at about 25 pounds per square inch gage, and not a great deal of superheat for the steam at about 125 pounds per square inch gage.

Fig. 2 indicates the initial temperatures at various pressures that would result in about 10 deg. F. superheat at the 25 pounds per square inch gage exhaust of a non-condensing extraction turbine. It also indicates the superheat at the 125 pounds per square inch gage extraction zone. These curves must be considered approximate; they will vary somewhat with the individual machine. The efficiency of non-extraction and double extraction turbines will be somewhat different, and would result in a slight lowering or raising of the throttle temperature in order to arrive at the same superheat at the exhaust. This difference would be something on the order of 20 deg. F. These temperatures apply to the full load point.

From the above, it would appear that as far as design is concerned, the maximum pressure and temperature limits of turbines and turbine details within the ratings being considered, are beyond those that can be utilized to economical advantage in the paper industry at the present time.

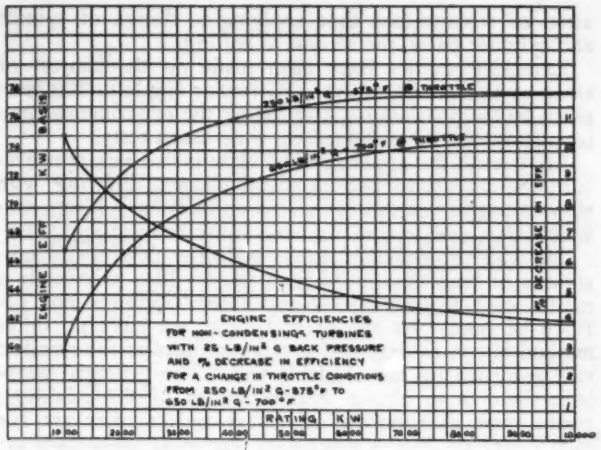

ENGINE EFFICIENCIES
FOR NON-CONDENSING TURBINES
WITH 25 LB/IN² G BACK PRESSURE
AND % DECREASE IN EFFICIENCY
FOR A CHANGE IN THROTTLE CONDITIONS
FROM 250 LB/IN² G-675°F TO
650 LB/IN² G - 700°F
RATING K W

FIG. 3

The Pressure Problem

The problem of the higher steam pressures resolves itself into that of handling small volumes of steam efficiently. This becomes more difficult the smaller the rating and the higher the pressure. From Fig. 3, it will be noted that the efficiency of the turbine falls off rapidly with the smaller ratings and the higher pressures. This makes the installation of small capacity machines for high pressures difficult for a purchaser to justify, especially when it is considered that turbine prices are advancing with pressure and temperature.

The Temperature Problem

The elevated inlet temperature presents quite a different problem, primarily that of mechanical design.

SPINDLE, CYLINDER, BOLTING:

The first problem, of course, is that of creep and relax-

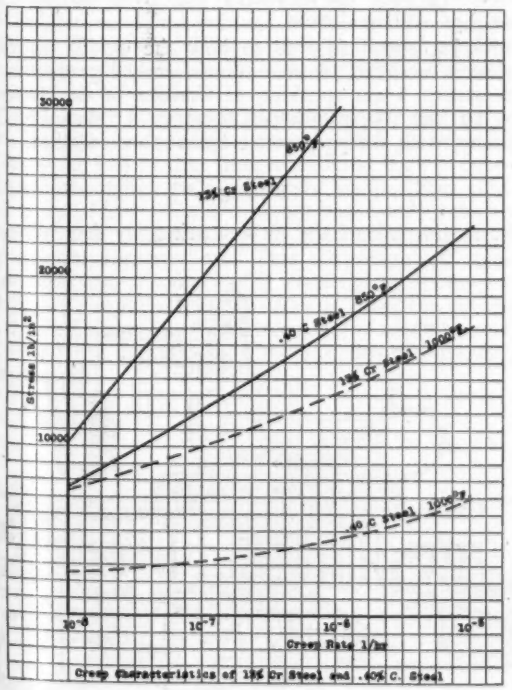


FIG. 4

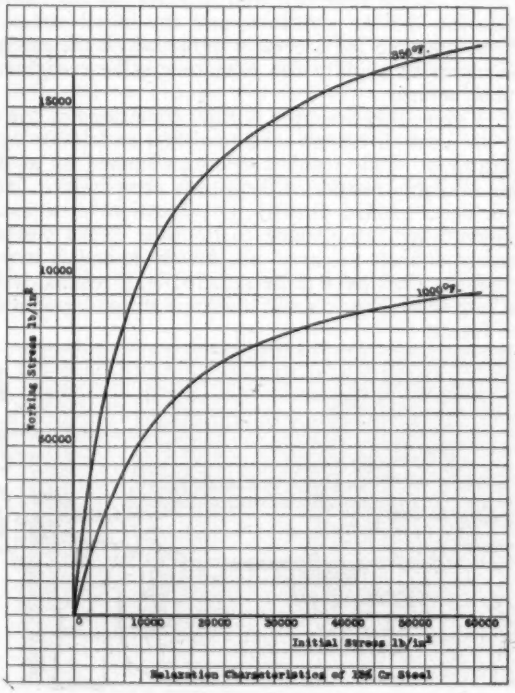


FIG. 5

ation of stresses, the first applying to design of spindle and cylinder parts, the second to bolting.

Extensive studies have been made on the subject of creep at high temperatures. Particular emphasis has been given to the problem of interpreting the experimental material now available from long time creep tests.

In general, the application of material at high temperatures resolves into two principal classes, differing with respect to the manner of stress application. First, constant stress and second, variable stress (relaxation).

The case of constant stress is fairly close to circumstances of long time creep tests itself. It is principally a matter of extrapolating the test results through long periods of time. At the present time, we have no other method but to assume that creep continues at the smallest rate recorded by the available test. The principal problem, then, is to obtain reliable values of the minimum strain rates as functions of stress and temperature for each material. Fig. 4 represents our most up-to-date information in this respect for two important materials.

The most important cases of creep, under constant or nearly constant stresses, are rotating structures under centrifugal forces and pressure vessels under internal pressures. In both of these cases, conditions may be more or less complicated by variations of stress over the section, and changes in stress, due to plastic flow and so on, but in general the type of material in Fig. 4 can be applied. The case of relaxation is somewhat further removed from the conditions of the test, and a more elaborate method of interpretation is necessary. The principal source of information is still the long-time creep test. In this case, the plastic deformation of the material causes a marked reduction in stresses, so that the limits are set by reduction of the stress, rather than by changes of the dimensions. The typical example of this case is the bolt problem, such as the horizontal bolting of a turbine cylinder, or the flange bolting of a pipe joint. In these cases, the structure is initially assembled with certain stress which will drop with time at reducing rate. The order of magnitude of the time involved depends on the material, the elasticity of the structure, and the initial stress. In addition, the time for a certain reduction of the assembly stress increases slightly for each successive re-tightening of the structure.

Fig. 5 gives this limit for normal conditions of the bolt of 13 per cent chromium steel, and 850 and 1000 deg. F. temperatures. This result has been obtained by analysis of the available results of long-time creep tests. It has not yet been verified directly by relaxation tests, but arrangements are being made to do this. Such tests are extremely difficult to carry out, however, and it is probable that we shall have to be satisfied with results derived from long-time creep tests at constant stress for sometime in the future.

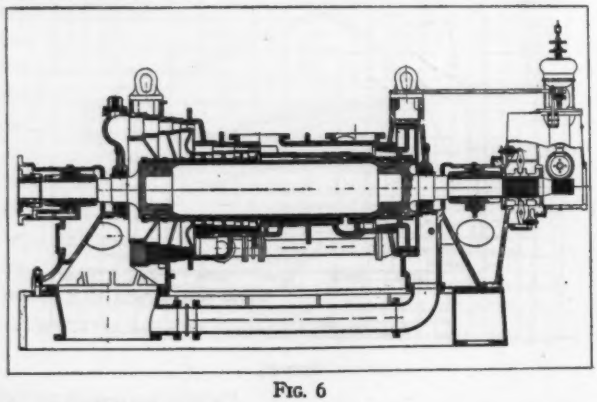


FIG. 6

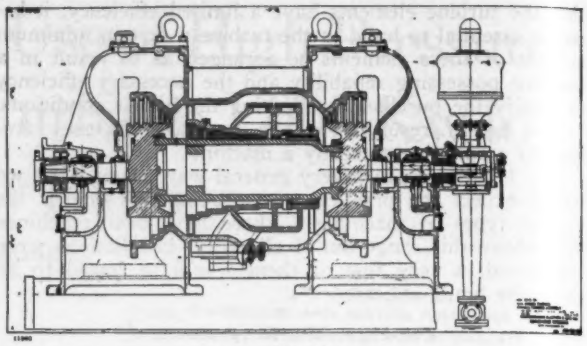


FIG. 7

It is seen, from this result, that at 850 deg. F. temperature, the joints have to be operated for bolt stresses in the order of 15,000 pounds per square inch. At 1000 deg. F., this limit should drop to about 8500 pounds per square inch, a result which indicates the extremely limited circumstances at this temperature.

The second problem, and at present the hardest one to solve, resulting from the higher temperatures, is that of non-descript distortion and differential expansion. This problem is intimately connected with the accuracy by which the superheat can be controlled. The control of superheat for maximum steam temperatures on the conventional boilers, is generally very satisfactory when the load is constant or when it varies slowly. During the starting-up period and during periods of rapidly varying load, however, large fluctuations of steam temperatures are sometimes encountered.

In cylinder construction, the first tendency is to increase the wall thickness to maintain stresses at a low level but, because of distortion with varying temperatures, these heavy sections may become fully as obnoxious as the risk of creep.

These varying temperatures also lead to the close scrutiny of sealing details.

Referring specifically as to how the details of design have been modified to meet the increased pressures and temperatures, I am speaking of changes or developments made by the Westinghouse Electric & Manufacturing Company, with whose practice I am more familiar.

Blading

The steam path of the turbine primarily determines the

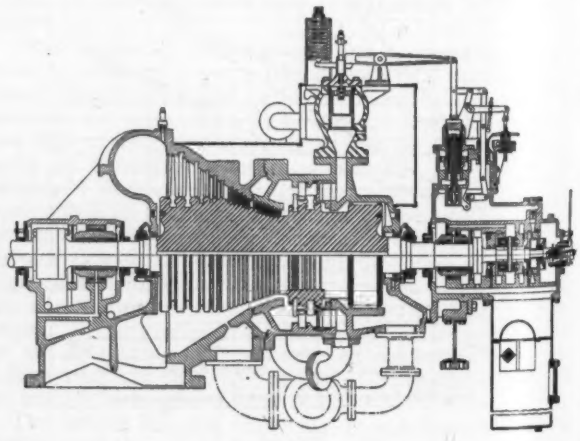


FIG. 8

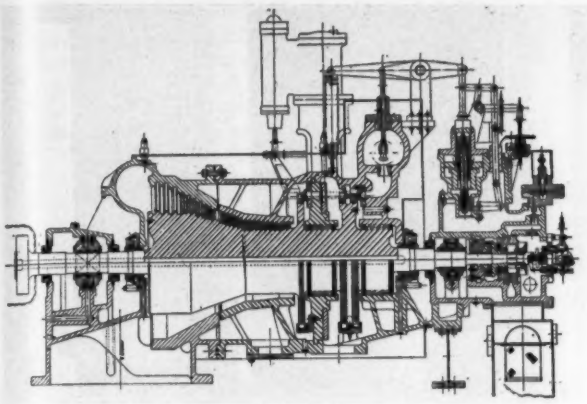


FIG. 9

proportions of the machine. As the steam conditions have gradually increased, changes have been made in the blade path to make use of those elements which seem best fitted for the application from the standpoint of reliability, efficiency and cost. Blade path details have been subject to changes in type and proportions; first, as the efficiency of one type becomes superior to another for a particular application and, second, as the cost of manufacture of one type of a given efficiency level becomes lower than that of the other, and, third, as stress conditions are changed by higher speeds and higher temperatures.

Originally, the Westinghouse Electric & Mfg. Co. used reaction blading throughout, but, as steam pressures advanced, it was recognized that there were benefits to be obtained by the use of some impulse element ahead of the reaction blading. These benefits were due primarily to the elimination of the extremely short reaction blading which carried with it large leakage losses. The use of impulse elements increased as the pressures advanced. As would be expected, these changes were first made on the smaller machines because of the small steam volume flowing. The changes were then gradually employed on the larger machines, as the temperatures and pressures advanced still further.

This change for the first stage of the turbine carried with it further advantages, one of which was that of confining what was at that time considered high pressure and temperature steam to a relatively small steam container. The body of the cylinder was not subjected to the throttle pressure and temperature. It thus somewhat simplified the cylinder construction. This advantage still applies in most cases but, in others, it is essential to bypass some of the high pressure stages, in order to meet the present-day level of efficiency. In this latter case, it becomes necessary to design the cylinder to withstand throttle pressure and temperature.

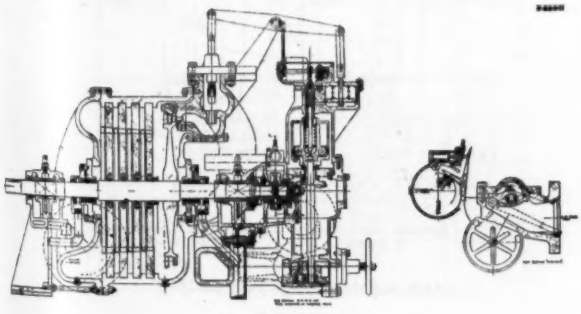


FIG. 11

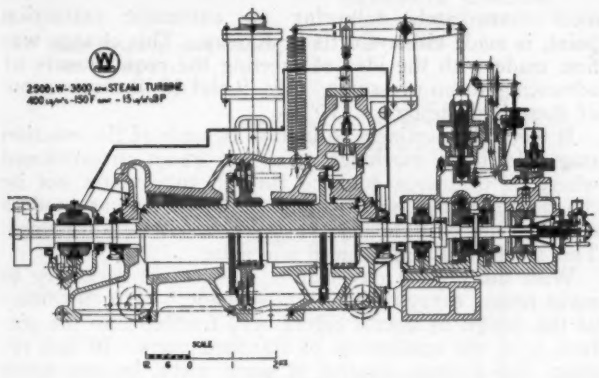


FIG. 10

The impulse element, with multi-valve governor control for the first stage, has the advantage also of maintaining the efficiency of the machine at a higher level over a wider range of loads, by eliminating a large part of the throttling loss. This has become a most important factor in recent years, since non-condensing and bleeder turbines have come into more general use, frequently operating on small energy ranges.

Fig. 6 is a section of one of the early Westinghouse designs, rated at 3000 kw. and 1200 r.p.m. As pressures advanced and better materials were made available, speeds were increased, the 3600 r.p.m turbine, Figure 7, becoming better proportioned for higher temperatures and pressures. The turbine shown in Fig. 7 was originally designed for 5000 kw. with maximum steam conditions of 250 pounds per square inch gage throttle pressure and 600 deg. F. TT.

The high pressure blading is of such proportions that the efficiency is becoming relatively low because of the leakage losses. If it were necessary to follow this design for the higher pressures encountered today, additional blades of still less height and greater leakage losses would have to be utilized, or the drum diameter reduced and the length of the turbine materially increased. Instead of following this procedure, however, an impulse element, as indicated on Fig. 8, was employed as the first stage. This change carried with it an increase in the number of governor valves from 2 to 4, thus making a further saving in the throttling losses at the lighter flows. In this case, even though the throttle pressure was 400 pounds per square inch gage, the pressure at the inlet to the first reaction group was only 90 pounds per square inch gage, or less than that for Fig. 7.

In practically all of the latest designs the first element at the high pressure end of the cylinder and the first ele-

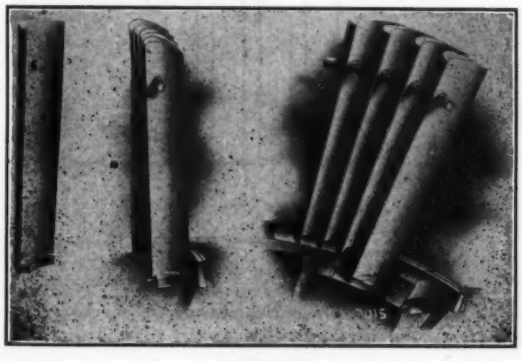


FIG. 12

ment immediately following an automatic extraction point, is made either Curtis or Rateau. This change was first made with the idea of meeting the requirements of advancing steam pressures. Figs. 9 and 10 illustrate some of these later designs.

It would be pertinent to inquire if some of the reaction stages in these machines were not about proportioned where, if pressures advance further, they might not be changed to Rateau to advantage. This is the case, unless some means of reducing the leakage losses is produced. This means can be produced at a price.

With the present day market, it becomes necessary to make nearly every turbine "tailor made." The flexibility of the design of details enters very forcibly into the picture, i. e., the application of standard parts. In this respect, the Rateau designs, in some ways, become more favorable than the reaction, and thus more attractive from the builder's standpoint.

For these reasons, as pressures continue to increase, more use is being made of Rateau elements, particularly for the smaller ratings. Reaction blading will continue to be used for the larger machines, where the steam volume flowing is such as to lead to efficient reaction design and where the more expensive sealing details are not required or can be justified from the cost standpoint.

Fig. 11 illustrates a development along these lines, being a Westinghouse 300 kw. non-condensing Rateau turbine.

The reaction blading, up to the last few years, has been held in dovetail grooves as indicated in Fig. 12. The larger forged blading had a T-root milled integral with the blades. The next step in the development of blade fastenings was in the direction of obtaining a universal type of fastening applying to all sizes and types of blades, i. e., blades for the cylinder as well as the spindle. The T-root construction was best suited for high temperatures. While it was desirable to have only one type of blade for all applications, the integral root type was too expensive for the smaller sizes and for cylinder applications where the question of centrifugal stresses was not involved. To take care of these cases, a composite blade was developed having a root interchangeable with the integral root type blade of the same size. Fig. 13 shows a

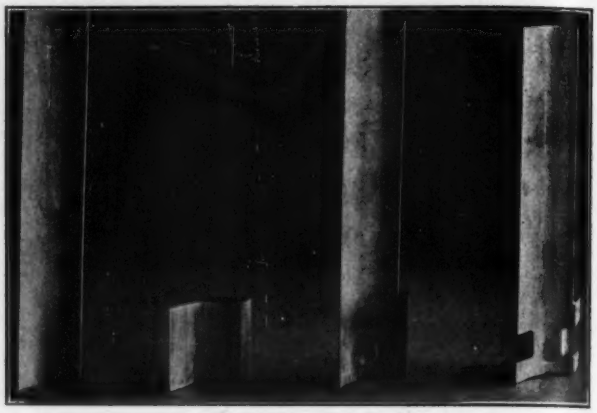


Fig. 13

composite blade and packing piece made from rolled and drawn sections. The packing piece is spot welded in position and finally brazed to the blades. The resulting root is then milled by the same equipment as the integral root blade. The result is a blade which is interchangeable with the integral root blade having most of its advantages without being much more expensive than the old type of separate packing. This same type of root is used on all sizes of blades, with the exception of those having a width of 3/8 inch or less. These 3/8 inch blades are locked in the groove by an overhanging shoulder on the packing piece only, as indicated in Fig. 14. The construction was changed in this case, because of the difficulty of machining the undercut groove, in an already narrow groove, in the element that is to carry the blade. A similar type of groove is used for fastening the impulse blades. See Fig. 17.

Test blocks have been made carrying blades with fastenings of the different types. The new fastening with brazed-on packing pieces has been found superior to the old design, in fact, the failure occurred in the blade section above the packing pieces

The importance of leakage losses of reaction stages of

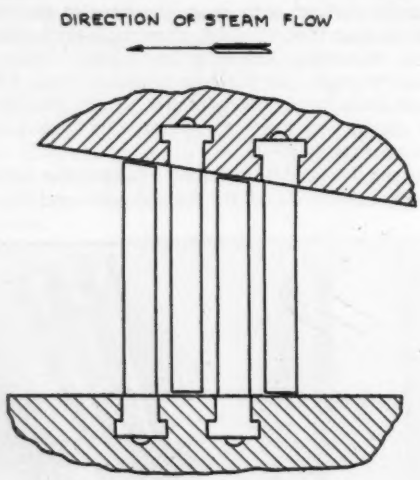


Fig. 14

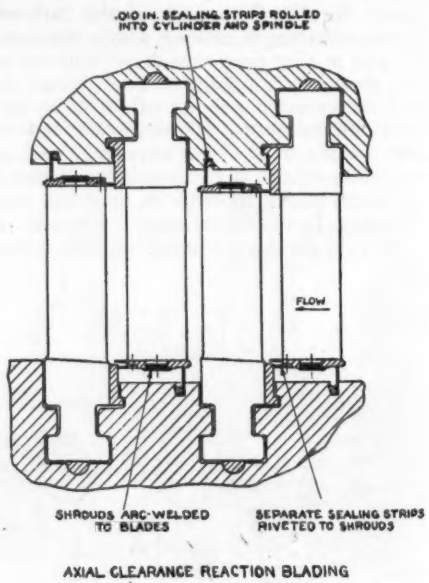

.010 IN. SEALING STRIPS ROLLED INTO CYLINDER AND SPINDLE
FLOW
SHROUDS ARC-WELDED TO BLADES
SEPARATE SEALING STRIPS RIVETED TO SHROUDS
AXIAL CLEARANCE REACTION BLADING

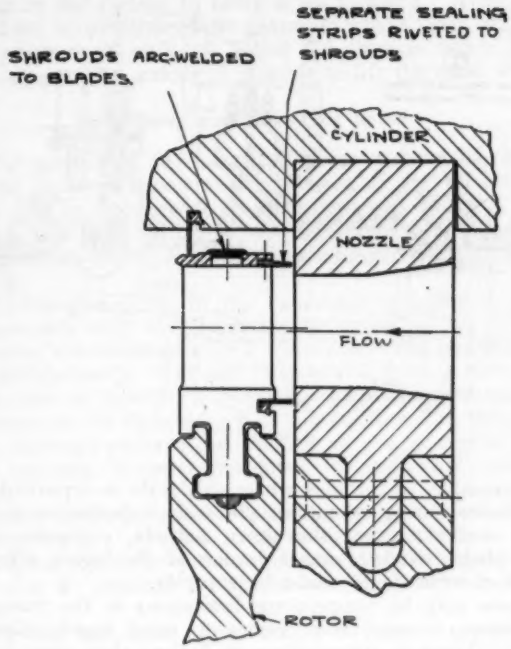
Fig. 15

conventional designs having short blade heights, has been particularly stressed. Sealing devices to reduce these losses can be provided where the expense is justified.

There is a minimum clearance with which a machine can be started and operated. The necessary operating clearance can be obtained by one of three methods. First, large clearances may be built in the machine. Second, sealing details can be used that will rapidly grind away, in case of contact with the stationary members, without generating an excessive amount of heat. With this design, the clearances originally are left relatively small, and the turbine is permitted to grind its own required clearance. This, in general, will be done during the warming-up period when variation in expansion of the turbine parts has taken place and when the steam temperature is fluctuating. Third, in the case of large machines, the clearances may be made adjustable such that, during the warming-up period, they may be manually increased. When the unit has become thoroughly heated and the steam temperatures stable, they may be closed in. These sealing details, as used in the Westinghouse turbines, are shown in Fig. 15. The radial seals may be used or omitted, as required. The reaction blades are provided with a shroud electrically welded to the blades. The separate sealing strips are riveted to one edge of the shroud as indicated. All strips are made of a chromium steel which grinds nearly as readily as soft brass, but retains the strength of the steel at elevated temperatures. The spindle position, and consequently the position of the blades attached to the spindle, is adjustable thru the medium of the thrust bearing cage.

Interstage leakage is an appreciable loss in impulse elements, as well as reaction, only to a lesser degree, thus Curtis elements and Rateau elements are treated in a manner similar to reaction blading, as shown in Figs. 16 and 17. Sealing details are also shown for dummies and labyrinth seals in Fig. 18. The sealing strips in the impulse element, the dummies and labyrinth seals are held in position by a soft steel strip that is rolled into position. All of these sealing strips are readily replaceable. Fig. 19 is a section of a turbine employing such details. Such construction is resorted to only when the ultimate efficiencies are required.

As far as blading materials are concerned, finished roll sections are produced in manganese copper, nickel and stainless steel. Manganese copper is used for low temperature work and low stress work, for which service it has no superior. In general, it is used in spindle blading up to a point where a temperature of 500 deg. is obtained at the blading, and for cylinder work up to a point where 600 deg. F. is obtained at the blading. For the higher



RATEAU BLADES FOR HIGH SPEED AND HIGH TEMPERATURE MILLED BLADE AND NOZZLE

Fig. 17

temperatures, it is usual practice to resort to stainless steel of the 12 to 14 per cent stainless iron variety. It lends itself well to manufacturing into various types of blading, has desirable physical characteristics, and in general has rendered excellent service. With the thought of adopting a single blade material, this material approaches the ideal closer than any other. There are conditions of service, however, for which this material is unsuitable.

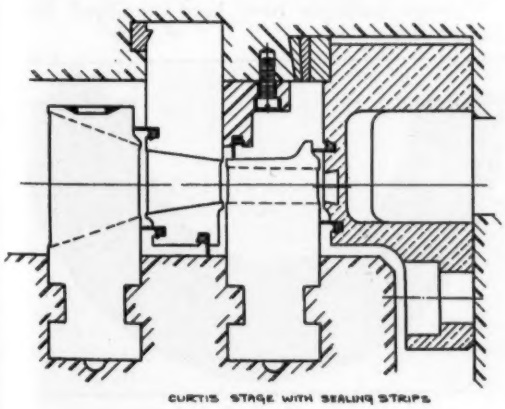
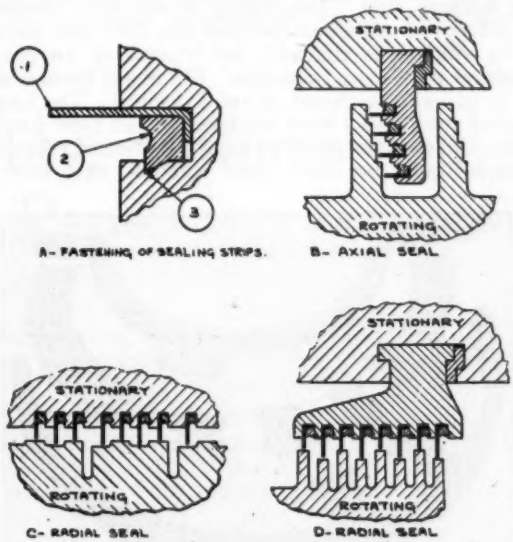


Fig. 16



SEALING DETAILS FOR GLANDS AND DUMMIES.

Fig. 18

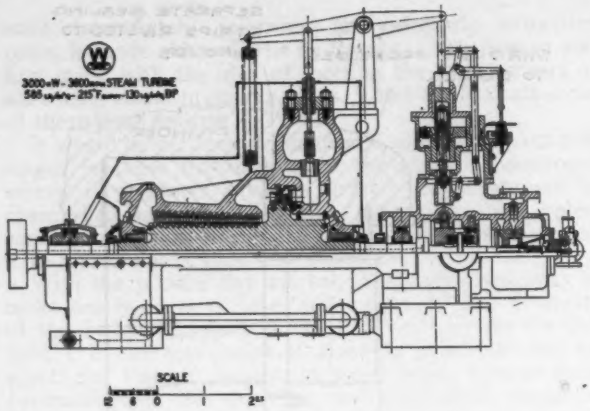


FIG. 19

For example, in turbines where salt scale is deposited on the blades during operation, and scale is permitted to become wetted during shut-down periods, corrosion will take place. Nickel, monel or one of the highly alloyed nickle chrome steels would be superior.

There may be temperature limitations to the material and recourse may be necessary to more highly alloyed steels. There is some reason to believe that some form of embrittlement may occur at higher temperatures. We have not found serious embrittlement of properly treated materials of controlled composition at temperatures of 850 deg. F.

In general, we still adhere to the 5½ per cent nickel steel blades for our impulse blading, although we have used other materials to meet special application. As the temperatures advance, it may become necessary to replace this 5½ per cent nickel steel with a material more suitable for the high temperature work, such as the 12-14 per cent stainless steel.

Nozzles

At the time being, nozzle blocks for lower temperature work are made of nickel bronze, and for higher temperature stainless steel. The change is necessary because of the differential expansion between the block and the casting to which it is attached, and because of the physical properties of the two materials. The nickel bronze blocks are, in general, machined of solid castings. The original stainless steel blocks were machined out of solid forgings. Today, the stainless steel blocks are fabricated, the nozzle passages being machined from stainless steel bars and

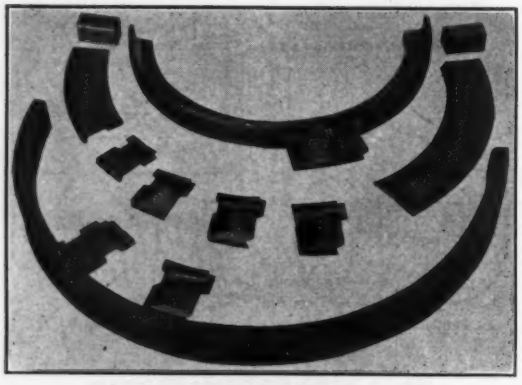


FIG. 20

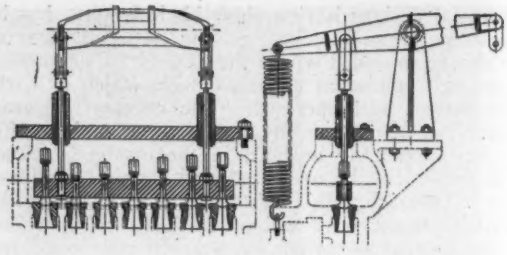


FIG. 22

secured with inner and outer segments of ordinary carbon steel plate by electric welding. Figs. 20 and 21 illustrate this type of block. The fabricated block leads to a stronger construction and a much better control over the dimensions of the nozzle passage.

Valves

During the time that the turbines were of the straight reaction type, two valves were usually employed. Both of these valves were necessarily a very large size, and it became necessary that they be balanced in order to obtain satisfactory governing. Balanced valves were used almost entirely, until the last few years when a valve having no close clearances was adopted. These valves are entirely unbalanced and, in order to relieve the load on the governing system at the point of just opening any one of the valves, it became desirable that they be made smaller than the previous valves, necessitating an increase in the number used. This construction carried with it a reduction in the throttling losses at light flows. Balanced valves necessarily had close clearances which were objectionable, first because of sticking caused by distortion and differential expansion at the higher temperatures, and secondly because of sticking caused by scaling. This scaling is due to the more general use of non-condensing turbines, exhausting steam to the process from which it could not be returned. Such operation makes necessary large quantity of feed make-up, frequently resulting in scale-forming material being carried over in the steam from impurities in the feed or materials added in the feed treatment. There still are some cases where it becomes necessary to bypass the first stage of the turbine. In this case, a valve of some balanced design may be employed. Fig. 22 indicates the plug type of governor valve system.

The flow characteristics of the plug valve are materially better than that of the old design, the pressure drops thru the valve being lower. This condition has been helped quite materially by the use of diffuser type valve seat. Various materials have been employed for these

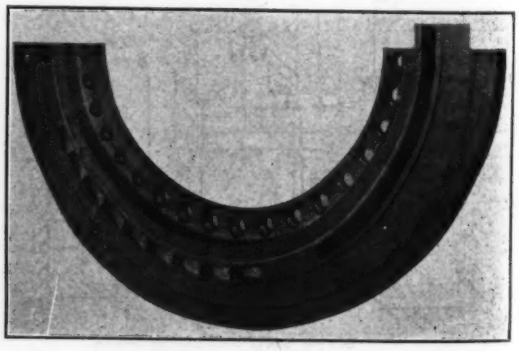


FIG. 21

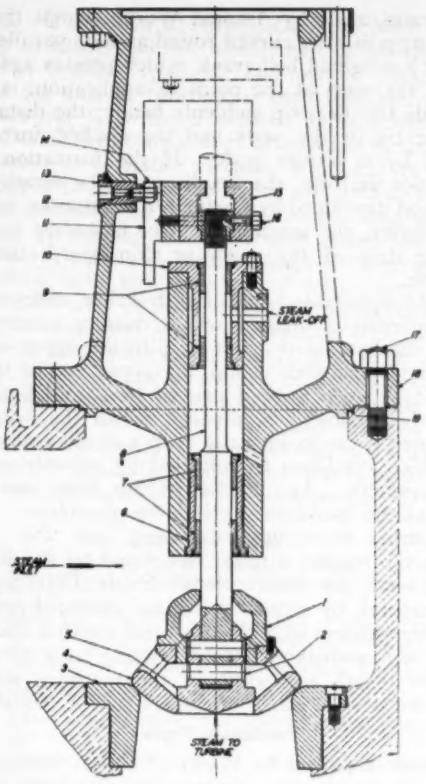


FIG. 23

valves and seats from time to time, including nitrided fittings, stainless steel fittings and fittings with welded stellite inserts. It has been our experience that the most satisfactory materials are at present of the stainless steel variety. The plug or valve is made from a harder steel than the valve seat, and the plug itself used in grinding the seat.

Throttle valves of the plug type have been developed and have replaced the balanced type of throttle. These, as a rule, are of the double plug type, as shown in Fig. 23, the smaller plug being of such a size as to pass sufficient steam to the turbine to bring it up to speed. After this has been accomplished, the governor valves close, so that the pressure is built up below the throttle valve, thus balancing it and making it possible to lift the main valve.

Lubricating and Governing Systems

The question of fire hazard of steam turbines has come to the front in recent years, because of several serious fires that have occurred on central station turbines. As a result of this situation, several measures have been proposed on central station turbines for obviating this fire hazard.

We have resorted to the expedient of using a non-inflammable fluid for operating the valves. This system has now been tried on several installations and has worked out satisfactorily. The non-inflammable fluid in these installations is Aroclor, a synthetic compound obtained by chlorination of diphenyl. It is our opinion that this system, although perhaps justified for very large central station turbines, is too complicated for industrial applications.

Other methods, such as placing the high pressure oil piping inside of the low pressure drains, have been proposed, but again the question may be raised whether these can ever be justified for the ordinary industrial installation.

For the industrial application, our present practice is to operate the valves mounted on the turbine cylinder from an hydraulic piston mounted on the bearing pedestal. By this means, oil is confined to the bearing housing where, of course, it will always be necessary. The only detail of the system that is left with an element of fire hazard is the oil operated throttle valve where, of course, it is necessary to have operating oil in close proximity to hot steam. In order to take care of this particular problem, we have resorted to encasing the steam parts in such a manner that they could be flooded with oil without danger of fire. Even this added feature is probably not necessary except for temperatures in excess of 750 deg. F.

Outside of these specific methods of arrangement, considerable attention has been given to the details of the oiling system so as to avoid dangers of pipe breakage, leakage, etc. These measures, together with good housekeeping methods in operating the turbine, should, in our opinion, practically eliminate the danger of destructive fires.

Determining the Rigidity, Stiffness and Softness of Paper*

By James d'A. Clark[1]

Abstract

Various methods for determining the stiffness or flexibility of paper and paper board are reviewed briefly and a new simple method is presented for determining the rigidity—flexural resistance; rigidity factor—proportional to the modulus of rigidity; stiffness—inverse of flabbiness, and the softness—feeling when crumpled.

The tests can be made simply with a threefold pocket rule and consist essentially of determining the overhang of a strip which, when the clamped end is rotated through a right angle, will just fall over in the direction turned, and applying a given formula. Results can be reproduced to within 5 per cent.

There have been a large number of methods proposed and used for the determination of the stiffness of paper, but owing to difficulties in carrying out the test, either the small size of the specimen used, the limited range, or lack of precision, no one test has yet found general favor.

Cantilever Types

Probably the oldest and most obvious test is that of

* Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.
[1] Member TAPPI, Technical Director, Scott Paper Company, Chester, Pa.

using the paper as a cantilever. A parallel strip of paper is clamped in a horizontal plane at one end and the droop of the strip at the free end under its own weight is taken as a measure of the stiffness, either by measuring the distance through which the free end of the specimen has dropped, *(1)* or the angle which the tip makes with the edge of the clamps *(2)* or by measuring the length of the horizontal projection of the bent strip *(3)*. For stiff papers a sliding weight has been used on the specimen to measure the bending moment required for a given deflection. With these methods the results are somewhat uncertain and the test unsatisfactory except for samples which are markedly different.

A comprehensive investigation into this type of test for insulating tapes and the like was made for the British Electrical and Allied Industries Research Association *(4)*. It was found that for curled specimens, the test is improved by bending the specimen into a loop, clamping the free ends in a horizontal clamp and measuring the droop of the center point of the loop. Messrs. Schopper have an apparatus available, very similar to the one used. A further modification also described, especially for materials cut on a bias, is the measurement of the elongation of a circle formed by a strip of paper hung on a pair of horizontal knife edge clamps, when an added weight in the form of a cylinder is placed in the bottom of the loop.

Beam Types

A method suitable for very stiff paper or paperboard is that of using a strip of the board as a beam, on two roller supports suitably spaced, loading the beam so formed at its center, and measuring the deflection produced. An excellent discussion and description of this method has been published by the Forest Products Laboratory at Madison *(5)*. Another application of the same principle but with a different design of apparatus has been described by Smith *(6)* in a paper which also contains an interesting theoretical discussion of the subject, together with experimental data. Both these methods are limited to fairly rigid materials. Apparatus embodying a somewhat similar principle and more suitable for paper has been described by Adams and Bellows *(7)*. The apparatus used is an attachment for the pendulum type of tensile tester. The force, necessary to bend and pull one or more strips of paper through and between a pair of parallel rollers by means of a roller stirrup, is measured.

Column Type

The principle using a strip of board or heavy paper as a column and determining the maximum load which it will withstand has been described by Stuart *(8)* as developed by Taber. As is well known in engineering practice, however, determining the compression strength of columns is relatively not a satisfactory test.

Folding Type

The Textile Section of the Bureau of Standards *(9)* has developed a delicate torsion folding device which is applicable to fabrics and probably to many papers. The force or couple necessary to bend a sample of paper to a given angle, or the angle through which a given couple will bend a rectangle of paper or cloth, is measured by means of a torsion head and set of fixed and moving vanes. The apparatus is delicate and the test takes some time, but it works well.

Modified Cantilever Types

Yet another principle is that of determining the maximum length of a narrow curved strip of paper held as a cantilever, which will resist a given point load *(10)*, *(11)*. An apparatus made by Askania Werke clamps the upper end of a strip in jaws curved round an axis parallel to the strip, and a weighted bell crank, which presses against the center of the strip at the point of application, is moved downwards till the strip suddenly bends; the distance between the tip of the jaws and the applied force being measured by a vernier scale. If the formation of the paper is not uniform, the results are very erratic.

A method developed by Carter *(12)* measures, by means of a pendulum, the amount of force necessary to bend a projecting strip of the paper or thin board, through a right angle.

A recent apparatus is the Smith-Taber stiffness tester *(13)*, employing a method which consists essentially in clamping the bottom of a test strip to the upper end of a vertical rigid pendulum clamp, the upper end of the strip being held between a fixed pair of bars, and finding the angle, in both directions, through which the system has to be rotated so as to give the strip a chord curvature of 22½°, which condition is indicated by suitably arranged electric contacts. An attachment for thin boards and papers uses the specimen itself as the pendulum.

The Gurley Instrument Company has also recently placed on the market a tester developed by the Research Laboratory of the International Paper Company *(14)* which measures, by means of a small weighted pendulum, the bending moment in both directions which a short strip of paper will withstand before bending to a certain degree. The length and width of the specimen strips are variable and a wide range of papers can be tested.

Pendulum Types

Finally as described by Pierce *(15)* for measuring the flexibility of starch films, there is the possibility of using a strip of paper in a torsion pendulum system.

A modification for certain papers could be used in which a parallel strip comprises the suspension element of a simple vibrating pendulum and the rigidity modulus deduced from the period of the swing, a very small amplitude being employed so as not to soften the strip by undue flexing.

In this paper is presented a new method which for simplicity, accuracy of repetition, precision and range is believed superior to any of the methods described. The stiffness range is over a millionfold, being suitable for both tissues of gossamer thinness, and up to thin paper boards. The apparatus required is so simple that measurements can be made to a fair degree of accuracy using only a pocket three-fold rule.

Figure 1 illustrates a convenient instrument for preci-

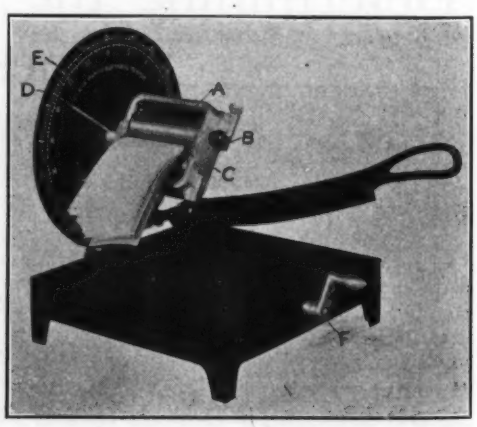


FIG. 1

sion work. It consists of two rollers, A, held together by spring pressure, one of which may be slowly turned by means of a worm drive, B. The line of contact of the rolls is in the axis of rotation of both rolls and supporting framework, C, while a pointer, D, attached to the frame indicates the relative angular position of the framework against a rotatable circular scale E. A parallel strip of paper is cut with the cutter attached to the base, and is inserted between the rolls. Its overhanging length is adjusted by turning the rolls, until, when the framework is turned back and forth through 90 degrees, which may be done with the slow geared adjustment, F, the strip just falls over in both directions of rotation. The overhang is measured with a millimeter rule from an abutment on the framework, which is a fixed distance (20 mm.), from the line of contact of the rolls.

Heavy boards may be successfully tested by the method unless the length of the specimen and the size of the equipment needed makes it too unwieldy, so for this purpose a method especially adapted to boards such as that described by Heritage, Schafer and Carpenter *(5)* is preferable.

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METHOD

Definitions

The *rigidity* of a paper is its property of resisting an applied force, its flexural resistance.

The *rigidity factor* is proportional to the Modulus of Rigidity and is a measure of the rigidity of the structure of the sheet.

The *stiffness* of a paper is its ability to support its own weight, the inverse of flabbiness.

The *softness* of a paper is the feeling of softness when a sheet is crumpled in the hand. This depends upon the ease of crumpling together with the absence of sharp edges in the crumpled sheet.

Apparatus

The apparatus used shall have means for firmly gripping a 2-inch wide strip of the material to be tested and rotating it about a horizontal axis at right angles to the length and parallel to the width of the strip, and means for indicating when the clamped end of the strip has been rotated axially through a right angle from any position in the plane perpendicular to the axis.

Also required are:

(a) Rule accurately graduated in millimeters.
(b) Basis weight scale.
(c) Micrometer.

Calibration

The instrument shall be leveled so that the axis of the clamping surfaces is horizontal. The edges of the clamping surfaces shall be coincident.

Test Specimen

The specimens for test shall be cut with clean and parallel edges in each principal direction of the paper, about 50 mm. (2 inches) wide and over 75 mm. (3 inches) long or as long as may be convenient. A very pronounced curvature of the strips in the direction of their length shall be eliminated by rubbing the strip over a smooth edge before testing, and any curvature across the width of the strips shall be similarly eliminated before cutting, and the width of the cut strips in this case should be reduced to a minimum, say 15 mm. (⅝ inch).

NOTE: A slight curvature in the long direction is immaterial as the procedure automatically compensates for this.

The specimens shall have been sampled and conditioned according to the official methods.

Procedure

The test shall be made in an atmosphere conditioned according to the official method.

Place the end of each strip between the jaws of the spindle, and adjust the overhanging length so that on rotating the spindle clockwise, the strip being on the left, the strip just falls through the vertical to the right, and on rotating the spindle anti-clockwise through 90 degrees from that point, the strip just falls back again to the left. (Increase the overhanging length if the angle between the falls is less than a right angle and decrease if over a right angle.)

When the strip has been so adjusted that this angle is exactly 90 degrees, measure the effective overhanging length to the nearest 0.5 mm.

Not less than 5 strips cut in each of the principal directions of the paper shall be tested.

If the mean of the highest and lowest readings differs from the average of all the readings by more than 5 per cent, more specimens shall be tested until there is agreement within these limits. An isolated very high or low result which is not repeated in duplicate shall be discarded when a consistent average is obtained without the abnormal reading.

The average basis weight and the average thickness of the paper shall be determined according to the official methods.

For the softness test the basic thickness of creped paper shall be determined as follows:

Cut strips of the paper in the machine direction about 15 mm. (⅝ inch) wide and using a dial micrometer having jaws with a closing pressure of .07 kgs per square centimeter (1 pound per square inch), on the area of the strip being tested, place a single strip between the jaws and, with the fingers, slowly and uniformly stretch the paper till it breaks, meanwhile observing the pointer. Take the minimum reading of the pointer just before the strip breaks, to the nearest .0001 inch. Repeat this test for five strips and average the results.

Report

The report shall state the rigidity, rigidity factor, stiffness or softness in each direction to three significant figures calculated as follows:

$$\text{Rigidity} = \frac{L^3W}{10{,}000}$$

$$\text{Rigidity Factor} = \frac{L^3W}{100\,T^3}$$

$$\text{Stiffness} = \frac{L^3}{100}$$

$$\text{Softness} = \frac{1{,}000{,}000.\ \log\,(t+1)}{L^3W}$$

Where L is the average effective overhang in cms.
T is the thickness of a single sheet of paper in thousandths of an inch
t is the basic thickness of a single sheet of paper in thousandths of an inch
W is the basis weight in grams per square meter.

Precision

Duplicate determinations of these results from samples of the same shipment and on different instruments should agree to within 5 per cent, except for the softness, which should agree to within 10 per cent.

Additional Information

1. For samples which unavoidably have been creased, after determining the basis weight and cutting the strips, the fold may be stiffened by one or two small narrow pieces of light weight gummed paper tape, such as is used for mounting postage stamps.

2. The width of the specimens may usually be varied within wide limits without affecting the results provided the edges are parallel.

3. For specimens when sufficient length is not available, attach to the end of the strip a sufficient weight, its center of gravity coinciding with the edge, such that the strip will fall over when the axis is turned through a right angle in either direction. The equivalent length L may be found approximately by taking the necessary measurements and substituting in the following formula:

$$L = l\left[\frac{1.}{1. - 0.37 \log. \left(\frac{10Wa}{wl} + 1.\right)}\right] = l\,[A]$$

Where l is the overhanging length of the strip in cms.
a is the length of the entire strip in cms.
w is the weight of the strip in grams.
W is the total added weight.
To simplify the calculation the value of the quantity in the brackets, A, is given in Table I.

TABLE I

Wa/wl	A	Wa/wl	A	Wa/wl	A
0	1	1.0	1.63	3.5	2.36
0.2	1.21	1.2	1.71	4.0	2.49
0.3	1.28	1.4	1.77	5.0	2.72
0.4	1.35	1.6	1.83	6.0	2.95
0.5	1.40	1.8	1.89	7.0	3.18
0.6	1.45	2.0	1.96	8.0	3.40
0.7	1.50	2.5	2.10	9.0	3.64
0.8	1.55	3.0	2.23	10.0	3.89
0.9	1.59				

4. Flopping the strip back and forth, especially when using the clip method, often softens it near the edge of the clamp. Accordingly it is best to start with too long a strip and progressively shorten it.

NOTES:

1. When extreme accuracy is not necessary, a number of strips of the same size may be placed in a pile with edges coinciding and all the strips tested together, the end points being taken at the positions where at least half the strips flop over. By this means a relatively large area of paper can be tested at once.

2. Routine testing may be further simplified when made on a given grade of paper, by using a fixed overhanging length of a pile of the samples and measuring the flexibility by the total number of degrees through which the spindle must be turned to secure a reversal. The degree readings may be related to the method as given by means of a suitable conversion curve determined experimentally.

3. For field tests, a threefold pocket rule may be used to give fairly accurate results. The test is made by cutting a parallel strip of the paper, inserting it between two of the folded sections of the rule. Using the third section opened at right angles to the other two as a pointer, and the square edge of the remaining paper to indicate when the sweep of the pointer is through a right angle, the folded section carrying the strip is held in a horizontal position on the edge of a table and rotated. The overhanging length of the strip is adjusted till the required conditions are attained.

4. For routine testing of softness with a given quality of creped paper, the basic thickness t may be deduced from the actual thickness T by a conversion factor previously determined by experiment.

Experimental

Table II gives the rigidity, rigidity factor, stiffness and softness of a number of different papers tested according to this method, together with an indication of the accuracy of repetition with two different observers and determinations of the stiffness of some of the samples using a Gurley stiffness tester, which are about twice that as determined by the present method.

TABLE II

Paper	W gm/m²	t .001"	Softness $10^6 \log (t+1)/WL^3$	L cm.	Rigidity $WL^3/10^4$	Stiffness $L^3/100$	T .001"	Rigidity Factor $WL^3/100\ T^3$	L Check	Gurley Rigidity
Facial Tissue	13.8	1.5	1660	2.6	.024	174	2.8	....	2.5	....
Cross Direction	....	....	570	3.7	.070	.51	....	....	3.7	....
Toilet Tissue	20.0	1.9	68	6.9	.68	3.28	2.2	....	6.8	....
C. D.	....	....	60	7.2	.77	3.73	....	....	7.2	....
Stereo Tissue	13.8	0.8	50	7.2	.52	3.73	0.8	102	7.1	....
C. D.	....	....	86	6.0	.30	2.16	....	59	5.8	....
Towel Tissue	61.0	6.1	14.8	9.8	5.74	9.40	9.5	....	9.8	....
C. D.	....	....	3.0	16.7	28.2	46.5	....	....	16.6	....
Decorative Crepe	98.3	5.0	480	5.5	1.62	1.66	16.0	....	....	....
C. D.	....	....	0.26	31.3	300	306	....	....	....	....
News Print	51.0	....	....	19.2	36.0	70.8	3.3	100	19.1	62
C. D.	....	....	....	14.2	14.5	28.6	....	40	14.0	35
S/C Book	66.2	....	....	16.0	27.0	41.0	2.4	195	16.0	54
C. D.	....	....	....	14.8	21.3	32.4	....	154	14.7	41
Mimeograph	66.8	....	....	20.2	54.7	82.4	4.1	80	20.2	....
C. D.	....	....	....	16.3	28.8	43.3	....	42	16.1	....
Sulphite Bond	74.6	....	....	20.8	67.2	90.0	3.1	226	20.7	....
C. D.	....	....	....	17.4	39.3	52.7	....	130	17.3	....
Antique Book	75.5	....	....	22.7	88.3	117	4.5	97	22.8	....
C. D.	....	....	....	16.1	31.5	41.7	....	35	16.3	....
Sulphite Wtg.	75.8	....	....	20.3	63.5	83.6	3.2	191	20.4	....
C. D.	....	....	....	15.3	27.2	35.8	....	83	15.3	....
Rag Bond	79.0	....	....	19.2	55.8	70.7	4.0	87	19.1	106
C. D.	....	....	....	17.0	38.7	49.0	....	60	17.0	....
Coated Book	120	....	....	20.0	96.0	80.0	3.9	135	19.0	213
C. D.	....	....	....	17.1	60.0	50.0	....	103	17.4	....
		a (See Table I for	W Definitions)	w	l					
No. 2 Kraft	98.0	22.8	.341	.632	20.3	29.6*	252	25.7	5.7	136	....	....
C. D.	....	....	0	....	....	20.5	84.5	86.1	....	46	20.5	....
Rope Manila	119.5	27.7	.341	.903	26.3	35.5*	535	447.	7.2	145	....	....
C. D.	....	....	0	....	....	20.7	106	88.7	....	28	20.7	....
Rag Index	314	27.7	4.80	2.38	26.7	53.1*	4070	1497	13.2	178	....	....
C. D.	....	22.8	2.09	2.02	21.9	36.4*	1520	482	....	66	....	2940
News Board	346	27.7	14.18	2.72	27.1	75.9*	15100	4372	22.2	137	....	....
C. D.	....	22.8	2.13	2.24	21.9	35.7*	1570	455	....	14	....	....

* Clip weights used.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MARCH 23, 1935

CIGARETTE PAPER

Champagne Paper Corp., Pr. Roosevelt, Havre, 676 cs.; Standard Products Corp., Ile de France, Havre, 75 cs.; ———, Kosciuszko, Gdynia, 25 cs.; H. H. Strauss, Indep. Hall, Bordeaux, 220 cs.; Suarez & Crespo, Indep. Hall, St. Nazaire, 2 cs.; Champagne Paper Corp., by same, 494 cs.

WALL PAPER

S. K. Lonegren, Drottningholm, Gothenburg, 6 cs.; American Express Co., Kano Maru, Tientsin, 1 cs.; W. H. S. Lloyd & Co., Alaunia, Southampton, 2 cs.; ———, Manhattan, Hamburg, 1 cs.; ———, Manhattan, Havre, 8 cs.; Cary & Co., by same, 1 cs.

NEWSPRINT

———, Stavangerfjord, Oslo, 393 bls.; N. Y. Evening Journal, Markland, Liverpool, N. S., 309 rolls; N. Y. Tribune, by same, 1699 rolls; World Telegram, by same, 569 rolls; Bridgeport Herald, by same, 85 rolls; Brooklyn Daily Eagle, by same, 267 rolls; Gilman Paper Co., by same, 262 rolls; Parsons & Whittemore, Inc., Drottningholm, Gothenburg, 100 rolls.

WRAPPING PAPER

Scharf Bros. Inc., Veendam, Rotterdam, 2 cs.; A. Johnson & Co., Drottningholm, Gothenburg, 322 rolls.

KRAFT PAPER

H. Reeve Angel & Co., Inc., Drottningholm, Gothenburg, 11 bls.; Lunham & Reeve, Inc., by same, 690 rolls.

FILTER PAPER

H. Reeve Angel & Co., Inc., Majestic, Southampton, 10 pkgs.; H. Reeve Angel & Co., Inc., Alaunia, Southampton, 16 cs.

PHOTO PAPER

J. J. Gavin, Majestic, Southampton, 7 cs.

METAL COATED PAPER

Taub Hummell & Schnall, Manhattan, Hamburg, 2 cs.

SURFACE COATED PAPER

E. B. Baehr & Sons, Pr. Roosevelt, Hamburg, 2 cs.

SILK PAPER

Van Oppen & Co., Exeter, Marseilles, 7 cs.

STENCIL PAPER

American Express Co., Majestic, Southampton, 1 cs.; ———, American Trader, London, 1 cs.

BASIC BOARD

———, Veendam, Rotterdam, 10 cs.

STRAW BOARD

———, Veendam, Rotterdam, 133 rolls.

PASTE BOARD

Phoenix Shipping Co., Manhattan, Hamburg, 10 bls.

MISCELLANEOUS PAPER

Keuffel & Esser Co., Washington, Hamburg, 42 cs., 17 rolls; T. N. Fairbanks, Sanyo Maru, Yokohama, 5 cs.; The Borregaard Co. Inc., Drottningholm, Gothenburg, 612 rolls; Kraemer & Co., by same, 298 bls.; E. H. Sargent & Co., by same, 2 cs.; Coty Processing Co., Ile de France, Havre, 2 cs.; C. H. Boulin, by same, 3 cs.; ———, Kano Maru Osaka, 1 cs.; Keller Dorian Paper Co., Exeter, Marseilles, 6 cs.

RAGS, BAGGINGS, ETC.

F. Stern Co., Veendam, Rotterdam, 110 bls. rags; F. Stern Co., by same, 120 bls. bagging; ———, Cubano B. Ayres, 414 bls. rags; Banco Coml Italiane Trust Co., Black Gull, Rotterdam, 171 bls. bagging; ———, City of Flint, Dundee, 269 bls. paper stock; Castle & Overton, Inc., by same, 68 bls. paper stock; E. J. Keller Co. Inc., City of Flint, ———, 269 bls. rags; E. J. Keller Co. Inc., Cypria, ———, 418 bls. rags; Keene & Arkus, Cypria, Barcelona, 156 bls. rags; Bank of N. Y. Trust Co., by same, 75 bls. bagging; Bank of N. Y. Trust Co., by same, 112 bls. rags; E. J. Keller Co. Inc., Exeter, ———, 160 bls. rags; E. J. Keller Co. Inc., Indep. Hall, ———, 639 bls. rags; W. Steck & Co., Alssund, Antwerp, 140 bls. jute waste; Darmstadt Scott & Courtney, by same, 210 bls. jute waste; ———, Exchange, Barcelona, 168 bls. bagging; ———, by same, 275 bls. rags; Banco Coml Italiane Trust Co., by same, 263 bls. rags; Chase National Bank, Manhattan, Havre, 100 bls. bagging.

CASEIN

Philipp Bros. Inc., Black Gull, Rotterdam, 35 carboys; ———, Eastern Prince, B. Ayres, 250 bags.

WOOD PULP

A. Giese & Son, Veendam, Rotterdam, 20 bls. wood pulp; M. Sone, Pr. Roosevelt, Hamburg, 650 bls. wood pulp, 70 tons; J. Andersen & Co., Stavangerfjord, Sarpsborg, 150 bls. sulphite; J. Andersen & Co., Stavangerfjord, Olso, 2425 bls. sulphite; Irving Trust Co., by same, 1320 bls. mechanical pulp; The Borregaard Co. Inc., by same, 288 bls. sulphate; Johaneson Wales & Sparre, Inc., Drottningholm, Gothenburg, 132 bls. sulphite; Johaneson Wales & Sparre, Inc., by same, 100 bls. kraft pulp; Perkins Goodwin & Co., by same, 127 bls. sulphate; Perkins Goodwin & Co., by same, 127 bls. kraft pulp; D. M. Hicks, Inc., by same, 330 bls. sulphite; ———, Excelsior, Constanza, 250 bls. wood pulp, 50 tons; Parsons & Whittemore, Inc., Carplaka, Gdynia, 500 bls. sulphite, 100 tons; E. J. Keller Co. Inc., Carplaka, ———, 337 bls. wood pulp, 50 tons;

M. Sone, Carplaka, Hango, 300 bls. wood pulp, 50 tons; Bulkley Dunton & Co., Dagmar Salen, ———, 375 bls. sulphite, 76 tons; ———, by same, 60 bls. sulphite, 10 tons; ———, Dagmar Salen, Hernosand, 3000 bls. sulphite, 500 tons; Bulkley Dunton & Co., Hamburg, ———, 500 bls. wood pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., Carplaka, Hango, 46 bls, 6 tons.

BOSTON IMPORTS

WEEK ENDING MARCH 23, 1935

———, Excelsior, Constanza, 125 bls. woodpulp, 25 tons; Atkinson Haserick & Co., Exeter, Genoa, 18 cs. paper; Bulkley Dunton & Co., Dagmar Salen, ———, 3075 bls. woodpulp; Perkins Goodwin & Co., Dagmar Salen, Stockholm, 3000 bls. sulphate, 500 tons; Johaneson Wales & Sparre, Inc., by same, 780 bls. sulphate, 130 tons; Parsons & Whittemore, Inc., America. ———, 00 bls. woodpulp.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 23, 1935

Chase National Bank, City of Flint, London, 53 coils old rope; Johaneson Wales & Sparre, Inc., City of Flint, Hamburg, 700 bls. woodpulp, 105 tons; ———, City of Flint, Dundee, 18 bls. paperstock; ———, Excelsior, Constanza, 250 bls. wood pulp, 50 tons; Keystone Supply Co., Alssund, Antwerp, 16 bls. rags; Union Waste Co., by same, 34 bls. rags; ———, by same, 38 bls. rags; Bulkley Dunton & Co., Dagmar Salen, ———, 250 bls. sulphite, 50 tons; Mead Sales Co., Dagmar Salen, Stockholm, 2400 bls. sulphite, 450 tons; Perkins Goodwin & Co., by same, 968 rolls newsprint; E. J. Keller Co. Inc., Indep. Hall, ———, 132 bls. rags; Castle & Overton, Inc., Indep. Hall, Bordeaux, 279 bls. rags; H. G. Lichtenstein, by same, 442 bls. rags; Irving Trust Co., Indep. Hall, St. Nazaire, 460 bls. rags; Castle & Overton, Inc., by same, 489 bls. rags; Bank of Manhattan Co., by same, 467 bls. rags; Parsons & Whittemore, Inc., Ulva, ———, 10050 bls. woodpulp; Bulkley Dunton & Co., Kelkheim, ———, 625 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING MARCH 23, 1935

———; City of Flint, London, 100 coils old rope; National City Bank, Cypria, Valencia, 775 bls. rags; Price & Pierce, Ltd., Dagmar Salen, Soderhamn, 2000 bls. mechanical pulp, 400 tons; Bulkley Dunton & Co., Dagmar, Salen, ———, 2125 bls. wood pulp, 425 tons; Congoleum Nairn Co., Indep. Hall, Bordeaux, 707 bls. rags; Castle & Overton, Inc., by same, 382 bls. rags; E. J. Keller Co. Inc., Indep. Hall. ————692 bls. rags; National City Bank, Indep. Hall, St. Nazaire, 675 bls. rags; M. Sone, City of Hamburg, Hamburg, 500 bls. wood pulp; Parsons & Whittemore, Inc., Ulva, ———, 2250 bls. wood pulp; Parsons & Whittemore, Inc., City of Hamburg, ———, 1925 bls. wood pulp; Bulkley Dunton & Co., Kelkheim, ———, 5375 bls. wood pulp.

NEWPORT NEWS IMPORTS

WEEK ENDING MARCH 23, 1935

———, Excelsior, Constanza, 1350 bls. wood pulp, 270 tons; Price & Pierce, Ltd., Dagmar Salen, Soderhamn, 1000 bls. mechanical pulp, 200 tons; Mead Sales Co., Dagmar Salen, Stockholm, 3600 bls. sulphate, 600 tons; Bulkley Dunton & Co., Dagmar Salen, ———, 150 bls. sulphate, 25 tons; Bulkley Dunton & Co., Consul Corfitzen, ————, 1750 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING MARCH 23, 1935

Lagerloef Trading Co., Argosy, Helsingfors, 1485 bls. sulphate, 276 tons; Lagerloef Trading Co., by same, 2040 bls. sulphite, 376 tons; ———, by same, 612 bls. sulphate 101 tons.

NEW ORLEANS IMPORTS

WEEK ENDING MARCH 23, 1935

Parsons & Whittemore, Inc., Topeka, ———, 586 bls. wood pulp.

HOUSTON IMPORTS

WEEK ENDING MARCH 23, 1935

E. J. Keller Co., Inc., Cody, ———, 82 bls. bagging.

Inspect Pulp Facilities at Albany

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., March 25, 1935.—Ivan Frolander, representative of Swedish wood pulp interests, and Edwin B. Ericksen, secretary of Pagel, Horton & Co., of New York City, were visitors here during the week and made an inspection of the facilities provided for handling wood pulp at the local port terminal. Mr. Frolander made the trip purposely to see what facilities could be provided for taking care of the output of the Robertsfors Sulphite Mill, at Robertsfors, Sweden, of which he is technical director. He declared that it was his first trip to this country and appeared favorably impressed with conditions at the local port. From information gathered in Chicago, Boston, Portland, Baltimore and other shipping centers he inclined to believe that business is on the up-grade.

He stated that the mill he represents is a few miles from the seaport of Sikea and that the pulp is hauled there over the first electric railway built in Sweden. Albany may expect about as much pulp wood from Sweden this year as previously, he indicated. He said that conditions were quite prosperous in that country and last year was a boom period. He also expressed interest in the rate case before the Interstate Commerce Commission for revision of tariffs into Western territory and believes that a favorable decision will mean a large amount of additional business.

Oswego May Have Woodpulp Terminal

[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., March 25, 1935.—The Oswego Harbor and Dock Commission held a meeting this week to discuss plans for the establishment of a pulpwood terminal with facilities for storing 60,000 cords which would be adequate in supplying paper and pulp mills within a radius of 75 miles for a year. It is claimed also that such a supply would remedy any emergency caused by a shortage in the winter season. It was brought out that the timber could be brought from Canadian tracts and transportation could be made by vessels plying the St. Lawrence River and the lower end of Lake Ontario. Contract has been made by the Oswego Board Corporation, recently taken over by the Johns-Manville Company, for a shipment of 1,400 tons of ground wood pulp which is to be shipped up the barge canal from New York City next months. It is expected that other cargoes of the product for the concern will be obtained in Canada and brought here over the St. Lawrence route.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, March 27, 1935.

Steadiness prevails in the local paper market. Demand for the various grades of paper is fairly brisk. Sales forces of the leading paper organizations continue to express optimism over the future. Prices are generally holding to previously quoted levels without difficulty and reports of shading are infrequent.

The position of the newsprint paper market is practically unchanged. Advertising volume in the leading newspapers continues to run ahead of last year. Manufacturing operations are being maintained in sufficient volume to take care of current requirements. Stocks at United States and Canadian mills totalled 90,037 tons at the end of February.

Demand for the various standard grades of fine paper is well sustained, including book, cover, writing and ledger papers. Prices are firm. Tissues are seasonally active. The coarse paper market is displaying strength, with kraft specialties attracting more interest. The paper board market is sharing the general improvement.

Mechanical Pulp

The ground wood pulp market continues to mark time. Production of mechanical pulp, both in this country and abroad, is practically keyed to consumption and the statistical position of the industry is considered satisfactory. Prices are generally holding to schedule on both domestic and imported grades.

Chemical Pulp

Since the reduction of quotations on domestic and foreign bleached sulphite by $5 per ton and easy bleaching sulphite by $4 per ton, last week, no further changes have been recorded in the chemical pulp market. Demand for the various grades is moderately active. Offerings of kraft pulp are limited and prices firm.

Old Rope and Bagging

The old rope market continues quiet. Demand for both domestic and imported old manila rope is restricted. Small mixed rope is dull. Old rope prices are fairly steady. The bagging market is exhibiting a stronger undertone, with offerings of gunny and scrap bagging rather scarce. Roofing bagging is holding up well.

Rags

Conditions in the domestic rag market continue to improve. Demand for new cotton rags is fairly brisk. No. 1 white shirt cuttings are moving freely and are still in demand for export. Roofing grades continue steady to firm. Due to the uncertainty in the foreign exchange situation the imported rag market is listless.

Waste Paper

The paper stock market is still rather quiet. Board mill demand for the lower grades is light, although strictly folded news is stronger, due to scarcity of offerings. The higher grades of waste paper are somewhat softer, influenced apparently by the recently announced reduced quotations on chemical pulp. Book stock is fairly steady.

Twine

Trading in the local twine market is improving, with the approach of Eastertide. Quotations on some grades are slightly firmer. American India polished twine is now quoted at from 18½ to 20½ cents and Special Fine India at from 16½ to 18½ cents. Other varieties continue unchanged.

New England TAPPI Meetings

The dates of the remaining meetings of the New England Section of the Technical Association of the Pulp and Paper Industry have been announced by F. C. Clark, Chairman, 246 Stuart Street, Boston, Mass.

April 26 at Worcester, Mass., H. J. Ritter of the U. S. Forest Products Laboratory, Madison, Wis., will talk on "Some Wood Properties that are Utilized in Paper." Place of meeting to be announced.

May 18 at the Irving House, Dalton, Mass.

June 14 and 15 at the Toy Tower Tavern, Winchendon, Mass. This will be a joint meeting with the Northeastern and Connecticut Valley Divisions of the American Pulp and Paper Mill Superintendents Association.

TAPPI Notes

David M. Shapleigh formerly with the Brown Company is now sales engineer with Bulkley, Dunton & Co., New York.

Harold A. Norseen, chemist at Castanea Paper Company, Johnsonburg, Pa., for about three years has gone with D. M. Bare Paper Company at Roaring Spring, Pa.

Frank Makara recently of Columbia University is now with Pettengill Inc., in Chicago. Mr. Makara was formerly on the faculty at the University of Idaho, Moscow, Idaho.

C. R. P. Cash, formerly of St. Helens Pulp and Paper Company is now with Champion Fibre Company, Canton, N. C.

Purchasing Agents to Meet in Kalamazoo

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., March 25, 1935—The Kalamazoo Association of Purchasing Agents will be the host to the Convention of the Fourth District of the National Association, which will be held in Kalamazoo, April 26 and 27, 1935.

The general chairman on arrangements is Frank Brown of the Michigan Paper Company, Plainwell, Mich. The local President is Ernest Turner of the Paper Makers Chemical Corporation. Principal speaker is L. B. Statlin, President of the Carbonate Metal Corporation of Chicago. Convention headquarters, Columbia Hotel.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, March 27, 1935.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are well sustained. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—While the prevailing demand for bleaching powder is light, the contract movement is about normal for the season. Prices are steady to firm. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is fairly steady. Domestic standard ground is quoted at 12½ and finely ground at 13 cents per pound; Argentine standard ground at 13¾ and finely ground at 14 cents per pound; and French standard ground at 13¼ and finely ground at 13½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. The contract movement is well up to average. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in drums, at works.

CHINA CLAY.—The china clay market is exhibiting a fairly strong undertone. Prices are unchanged. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—Demand for chlorine is fairly persistent. Contract shipments are moving in good volume for the season. Prices are firm. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is slightly easier. Paper making gum rosin is quoted at $4.55 and wood rosin at $4.40 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.60 per 100 pounds, in tank cars, at works.

SALT CAKE.—Paper mill demand for salt cake is fairly active. Prices remain unchanged. Salt cake is quoted at from $12 to $13 and chrome salt cake at from $11 to $12 per ton, at works. Imported salt cake is selling at from $12 to $13 per ton, on dock.

SODA ASH.—The soda ash market is displaying strength. Shipments against contract are moving freely. Prices are unaltered. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.20; and in barrels, $1.50.

STARCH.—Trading in the starch market is moderately active. The contract movement is about normal for the time of year. Special paper making starch is now quoted at $3.47 per 100 pounds, in bags; and at $3.74 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market continues firm. Demand from the mills is fairly brisk. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and nearby car loads, the quotation is $21 per ton.

TALC.—Conditions in the talc market are fairly satisfactory. Prices are holding to previously quoted levels. Domestic talc is offered at from $16 to $18 per ton, at eastern mines. The foreign talc situation is unchanged.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Kraft—			
No. 1 Northern	4.12½	@	4.75
Standard	4.00	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	40.00	@	45.00
Chip	37.50	@	40.00
Sgl. Mla. I.I. Chip	47.50	@	52.50
Jute Lined Chip	47.50	@	52.00
White Patent Coated	60.00	@	65.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	21.00	@	22.00
Dry	21.00	@	22.00
(F.o.b. Mill)			
No. 1 Domestic and Canadian	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.60	@	—*
Division 2	2.55	@	—*
Division 3	2.50	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.05	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.00	@	—*
Class 3, Standard	1.95	@	—*
Class 4. Lower than Standard	1.90	@	—
(On Dock, Atlantic Ports)			
Kraft No. 1	1.70	@	1.80
Kraft No. 2	1.50	@	1.60
(F.o.b. Pulp Mill)			
Kraft Domestic	1.70	@	2.35
(Delivered)			
Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	5.75	@	6.00
Silesias No. 1	3.75	@	4.00
New Unbleached	6.25	@	6.50
New Soft Blacks	3.00	@	3.25
Blue Overall	3.50	@	3.75
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.20	@	1.30
No. 2	1.10	@	1.15
No. 3	.95	@	1.00
No. 4	.95	@	1.00
No. 5A	.80	@	.85

Foreign Rags

New Rags

New Dark Cuttings	1.60	@	1.70
New Mixed Cuttings	1.75	@	1.85
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.56	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.40	@	1.60
Dark Cottons	1.00	@	1.10
Old Shopperies	.95	@	1.00
New Shopperies	.90	@	1.00
French Blues	1.70	@	1.90

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.40	@	1.50
Wool Tares, light	1.20	@	1.30
Wool Tares, heavy	1.20	@	1.30
Bright Bagging	1.15	@	1.25
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.60	@	2.70
Ordinary Hard White No. 1	2.10	@	2.15
Hard White No. 2	1.90	@	2.00
Soft White No. 1	1.70	@	1.80
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag.	.65	@	.75
Solid Flat Book	.45	@	.50
Crumpled No. 1	.35	@	.40
Solid Book Ledger	1.50	@	1.65
Ledger Stock	1.00	@	1.10
New B. B. Chips	.30	@	.35
Manilas—			
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